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TACTICS AND ORGANIZATION.

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ON
TACTICS AND ORGANIZATION;

OR,

ENGLISH MILITARY INSTITUTIONS AND THE
CONTINENTAL SYSTEMS.

BY

CAPT. F. N. MAUDE, R.E.

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P R E F A C E .

IN the present days when both armies and wars have ceased to be dynastic and have everywhere, except in England, become national, it is becoming daily of increasing importance that the nature of modern war, the sacrifices it entails, and the principles on which it is conducted, should be brought prominently before the notice of the civilian public. More so in England where we have no, strictly speaking, national army, but where a Civilian House of Commons interferes so largely, and a non-militaire press criticises so freely, details and movements which it requires a certain degree of military education to grasp. Not a very large degree certainly, but as far as it goes, it should be based on accurate principles. There is nothing recondite in these principles, they are usually founded

on pure common sense, and as the great German military author Von der Goltz remarks, since they deal with the simplest things such as men, guns, horses, roads, there is no reason why they should not be treated of in simple language. But the trouble in this case is to reach the readers. A book with a purely military title is read only by purely military men, and it seemed, therefore, to the writer that the best way to get at the readers he wanted, was through the columns of the daily press, which also forms a way of approach to the minds of the non-book-reading class of soldier, who, though he will shy at a book in a red cover, will wade comfortably through a military leader in a newspaper whilst discussing his breakfast. Though most of the articles were written for the moment only, yet, as a rule, they are based on principles whose importance is more than ephemeral, and since as a body they appear to have been well received by the officers of the army,

it has seemed well to republish them in book form.

The writer's object throughout has been to present or discuss English military institutions and forms, from the point of view and in the spirit of modern warfare as understood in Germany, and also to familiarise his readers with the great principles which in their application constitute the backbone of German military efficiency. He is no blind copyist of foreign military forms, and is certainly not inclined to underrate the courage or warlike capacity of his countrymen, but wishes only to see those principles, not forms, introduced into our service, which seem most in harmony with, and best suited to develop, the full fighting value of the race.

These are but few: Discipline, "Die Offensive Geist" or spirit of attack, and delegation of responsibility to the junior grades. These three, if once introduced in full force, would, in his opinion, more

than double the fighting power of the army and that without adding one farthing to the estimates.

To all whose susceptibilities he may have wounded, by his perhaps too vigorous language, he offers sincere apologies, and only begs that it may be taken into consideration, that a man who feels strongly cannot but write strongly, and that every line has been dictated by a wish to serve the cause of his Queen and country to the best of his ability.



LETTERS ON TACTICS AND ORGANIZATION.



ENGLAND'S DANGER.

THE surprise created by Prince Bismark's changed policy, has, perhaps, rarely been equalled in diplomatic circles, and it must also have been a serious shock to his numerous followers in his own country. But a short time ago, it was a fixed idea in every German officer's mind, that any further interference by Russia in Bulgaria meant war. On every side one was assured that the understanding between Austria and Germany was perfect, and that the time had come to put an end, once and for all, to the aggressive tendencies of the Slav. A recent study of the probable theatre of war in that event, signed by the pseudonym of "Sarmaticus" (a most able

M., L.

work by the way), was received with more than usual enthusiasm by the military press. One heard it discussed at almost every mess table, and both in Germany and Austria the idea of a loyal co-operation was looked forward to with universal pleasure. The possible alliance between France and Russia certainly had no terrors for the army, as they very cogently pointed out that their defences on both eastern and western frontiers had specially been based on the idea of this coalition, and with Austria's assistance, a few weeks would suffice to inflict such a check on France, that it would be possible to transfer the bulk of the troops engaged with her to the other frontier, which, by means of their perfect system of strategic lines, could be carried out within ten days. Considering the results obtained in thirty days in 1870, and that the French Army is by no means as efficient as a fighting engine now-a-days as it was then,—this at least is the opinion of those who fought

against it during that campaign, and have watched with the closest attention its development ever since,—it appears quite probable that the German officers may be right ; and within six weeks—in less time, in fact, than the unwieldy Colossus of the North can really mobilise her army—her ally may be crushed and bleeding, before she herself can have struck a blow.

Granted that this view of the case is correct, and that Prince Bismark is, as the Germans love to believe him, an honest man, it is indeed hard to account for his action ; but there is another view of the Prince's character, not altogether new to those who have studied his career. In politics, Prince Bismark is, and has always been, a thorough jesuit, and holds firmly to the principle, that the end justifies the means. Witness the secret history of the Benedetti treaty ; and is it not possible that he is playing the same game now ?

The chief problem he has now to contend with at home, is to provide an outlet

for his surplus population, every year becoming larger, and at the same time to seize on some of the trade, which he and every other foreigner believes to have been won from him by us, by our having taken a mean advantage of their disasters at the commencement of the century. It is useless to expect either a Frenchman or German to believe that we owe our present commerical prosperity to the superior business qualifications of our merchants. With natural and pardonable national vanity, they refuse to believe anything of the sort. The Frenchman attributes it to Napoleon's fatal continental blockade, and to the ruin of the French navy caused by the inconsiderate action of the Terrorists of the Revolution. Unquestionably, had it not been for these latter, who decapitated the very flower of their naval commanders, our naval supremacy would not have been so easily acquired. The Germans point to the ruin to Germany's industries caused by their fatal defeat in 1806, and how

very real a ruin it was, few who have not lived amongst them can realise. Almost every family of any repute gave up during those terrible years every vestige of jewellery or plate they possessed, and still shew as their proudest possession, the iron ring given them by the king as an acknowledgment of their sacrifices. Both countries join in believing that, if only a violent shock can be given to the present course of trade, they will easily regain what they hold to be their fair share of it. There can be no doubt, too, that, though the army of Germany is full of fight, the voting part of the nation, that part represented by the Reichsrath, desire peace most ardently ; and it is this very Reichsrath that has always been a thorn in the side to the Prince.

Now, if Prince Bismark can manage to keep the country out of war, whilst all the rest of Europe are embroiled in it, the advantages he will derive are manifest. In the first place, the Reichsrath will be

satisfied ; in the second, the opportunity will be given to German commerce ; and, in the third, he will be able to step in, when the time comes, as general peacemaker, making a sufficient demonstration with his army to appease their martial appetites.

Let us look at the cards he holds. Having assured Russia for the second time that all Bulgaria is not worth the bones of a single Pomeranian grenadier to Germany, it will be easy to obtain her good offices with France ; and a little judicious flattery to the latter will suffice to inflame them with the idea that, England being now engaged in a life and death struggle with Russia, the time has arrived to make good her claim to Egypt. Whether that claim is good or bad matters little to the French nation ; it is, at any rate, considerably better now than it was when they fought us for it in 1800 ; and being quite the most ignorant population, politically, in Europe, a very little will suffice to heat their passions to flashing point. There

is, and has been for the last ten years, a growing anti-English party in France, who have lost no opportunity of preaching a crusade against *la perfide Albion*; and it requires only a few incendiary articles in the Parisian press, holding forth their grievances and the booty to be obtained, to more than quadruple its number and violence. To those who doubt this, we would recommend a study of the secret history of the retirement of the French fleet from Alexandria in 1882. The question how it managed to pass Gibraltar in the night without being signalled, has as yet remained unanswered; but, if it did nothing else, it showed, once and for all, how very easy it would be for France to obtain a crushing numerical superiority in the Channel. There is reason, amounting to almost certainty, to believe that at that moment the French could have brought nearly thirty ironclads of first and second class against our Channel squadron, consisting at the time of only five second-rate vessels.

If France chose to quarrel with us about Egypt or the New Hebrides, it would not be in either of those out-of-the-way places she would seek for a decision. After the reminder the Germans gave them in 1870, it is not likely they will again forget Napoleon's first and leading principle of war, *viz.*, direct your stroke at that portion of the enemy's line which promises the greatest consequences with the least risk, and given a sufficient superiority in the "narrow seas," an occupation of London promises far the greatest results, with infinitely less risk than that incurred by a distant expedition to Egypt. Besides, whereas the whole mobilization scheme of France is liable to be practically destroyed, as has been recently proved, by such a comparatively trifling effort as the campaign in Tonkin, the mobilization of the five northern corps would create no disturbance whatever ; indeed, four of these five corps were mobilized in 1882 without exciting any comment on either side of the Channel.

As for the risks such a descent on our coast would entail, it must be remembered that the French look at it from quite a different point of view to ours. Man for man, they consider themselves at least as good, and as far as their military history goes, there is no reason why they should not ; not one Frenchman in a thousand ever heard of the battles of Vittoria, Salamanca, or the storming of Ciudad Rodrigo and Badajos. Bugeaud's immortal description of the British line is quite as unknown to them as it was to us, till Colonel Hume, R.E., rescued it from oblivion and enshrined it in the best English work on tactics of the century. Their ideas of Waterloo are either taken from Thiers or Victor Hugo, and two more miserable salves to national vanity have never been published. And assuming the equality of the troops, a very casual study of a railway map, in conjunction with the mobilization scheme—(which is a very real and important part of our national defences, being the only document on

which they are based)—and Viscount Wolseley's pocket-book are sufficient to prove that the occupation of London by the evening of the fourth day after the landing, is not only no visionary scheme, but one perfectly feasible from a military point of view. And what results does not such an occupation promise—not only the absolute derangement of our trade, but the rape of our colonies, and the surrender of our fleet.

But would such a complete catastrophe ever be tolerated ? No, at the very climax of the scene, the *deus ex machina*, Prince von Bismarck would step in, and like a second Canute, only more effectually, would command, "thus far shall thou go and no further," with the threat of armed intervention to back him.

All Europe being sick with fighting, he would then be able to pose as peacemaker. Whatever he chose to insist on, he could assuredly obtain. With his still intact army, he would be in the position of the

Cavalry leader with the last closed squadrons in hand, *i.e.*, master of the field. His army and his Reichsrath contented, he could afford to be generous, and would probably allow France undisputed possession of such of our colonies as she chose to demand, certain that, even if she got them, she could not keep them, and believing that the national commercial genius of his countryman, in which he, naturally, like every other German, believes, would suffice in the new condition of affairs, to win for them against our competition. Would not such a result be better worth playing for than merely satisfying Austria for the wounds inflicted at Sadowa? Nor need Austria be forgotten, for, after the almost certain defeat of Russia, she might be allowed to carve up the possessions of the Sultan in her own way,—whilst Italy might be given a sop, in return for renouncing her *irredenta* theories, in Dalmatia, the Ionian Isles, and, perhaps, Cyprus.

THE COST OF CONSCRIPTION.

LORD Randolph Churchill's recent speech at Wolverhampton has been severely pulled to pieces by his critics, because, in comparing the actual amount of money spent by the different nations of Europe on their armaments, he made no mention of the actual loss sustained by these nations through the action of their conscription laws. But none of his detractors have been good enough to furnish us with even a rough estimate of what the cost of conscription really is. They have been content to make a mere assumption on the hope that it will be blindly swallowed by their readers. Probably they themselves had not the vaguest idea of what they were asserting as they wrote; it is a commonplace expression in every one's mouth, and nobody seems inclined to look at it from a business point of view. But we propose to go even further than that, and

to consider it from a socialist point of view—not necessarily the same thing; though the adherents of that school of thought would willingly have us believe it. We may summarize the creed of this school briefly in three propositions. Free education, national workshops, down with large fortunes, or, in other words, a sliding scale of taxation directed against the large land-owners and capitalists.

Now, in the first case, what is meant by the expression “free education?” What is the actual meaning of the word “education” by itself? Even the Socialist knows—though he will not always admit it—that the mere power of reading and writing does not cover the whole meaning of the term. Certainly the heads of the society, men like Lasalle, Carl Marx, even the leaders of the “Commune,” knew very well that it took more than mere book-learning to make them the men they actually were; for, let us not deceive ourselves, those men were real leaders though in what we consi-

der a misguided movement, and they only attained their position through self-sacrifice, discipline (in the sense of the Roman Church) and self-abnegation. Twenty years ago, when national education first became a popular cry, men were deputed from England to visit and examine into the system of free education in vogue in Germany. They went, returned and reported, but they missed entirely what every German knows to be the keystone of their educational edifice, and that was the Army, or the national University ; for, in fact, the army in Germany performs the same function to all who are found physically able to stand the strain, as the Universities do in England for the upper classes. A boy in England goes to the University as the hero of a Grammar School, or even of a public school, but the contact with many other heroes of many other schools soon brings him to his proper level. If he avoids the University and goes into business, the struggle for existence soon teaches him

the same. The more adventurous boys emigrate and there, wherever it may happen to be, soon learn in the rough school of life, their actual relative position in society. The three years' service in the ranks exercise just the same effect on those called on to undergo it: it is the practicable application of the old saying, "through obedience learn to command." They are taught to obey, and hence, each according to his actual value as a man, learns to command; and even in civil life no man can succeed till he has learnt that first and greatest secret. But it may be argued (we are writing of the German Army), that this obedience is enforced in an unnecessarily brutal and inconsiderate way. We can only meet that statement by an almost direct contradiction. It is true that German officers and non-commissioned officers cannot enforce obedience with the same gentleness that, as a rule, Englishmen can. But the fault is not one belonging to the army specially, but to the whole

race ; and we are perfectly assured that, compared to the way in which the ordinary German tradesman enforces obedience amongst his own employés, the apparent hardness of discipline in the German Army compares just as favourably as our own army discipline with that of our "trade" discipline. The truth is that—it lies in human nature—a man will naturally enforce his power against another whose misconduct touches his pocket, much more severely than against one whose bad behaviour does not influence his daily-bread side of the question in the smallest degree. We have only to look at the way in which drunkenness on duty is punished in the army and in civil life. A man in the latter, drunk in a position where sobriety is essential, will lose his employment without doubt, and is then turned out into the market to find a place as best he can. A soldier drunk on guard mounting parade, would get, well, three years ago, 56 days' hard labour. Now, probably 28 days' C.

B. would be thought sufficient ; and the latter punishment is administered by five officers who literally do hear the evidence without partiality, favour, or affection ; but the former, by a man almost incapable of impartiality, because his pocket has been touched.

But we cannot dismiss the free education point of view without alluding to the advantages the soldier receives in return for his three years' submission to discipline. There is no profession in the world open to the poorest and least skilled workmen in which, relatively to the standard of comfort of the country, a man gets better fed, lodged, or clothed than in his army. And what an incalculable boon must it not be to them, with regard to their physical development, to have their constitutions built up and strengthened by three years of active out-of-door life. If here and there a man breaks down in the struggle, match that against the numbers who succumb to overcrowding, unhealthy

occupations, and their own weaknesses. We are too fond of legislating only for the existing population, and forget that the young men of the present generation are the prospective fathers of the next. Is it nothing to prevent some fifty per cent. of the male population from contracting marriages till they are full grown men, instead of, as they otherwise would do, as half-grown boys? Let any one who thinks so make a short tour through the manufacturing districts of the north of England.

Now, with regard to national workshops: it must be borne in mind that, practically, in every country in Europe, every farthing spent on clothing, equipment, food, and even arms (excepting in a few cases guns), is laid out in the country itself. Approximately the clothing and equipment of the German Army costs about £2,000,000 per annum, and all this, or the material for it, is supplied by German firms, who would certainly not tender for the contract unless they saw their way to a remunera-

tive return on their capital. If the 450,000 men of the army were disbanded to-morrow, they would prefer to clothe themselves in the cheapest market, and, as English shoddy can undersell almost anything in Germany, most of their money would go across the Channel. The armament of the infantry is almost entirely manufactured in State workshops, and supplied at cost prices. This is even a closer approximation to the Socialist workshops theory, and accounts for probably somewhere about £50,000,000 of Government Paper borrowed at $4\frac{1}{2}$ per cent. on an average, and we may be sure that this money is not expended at a loss.

The Artillery of the German Army is practically entirely supplied by Krupp, and we may be quite sure he does not work his mills at a loss. At any rate over 10,000 workmen are employed in his shops at Essen alone. The men of the German Army would, as a body, be satisfied with far simpler rations than they actually get

whilst serving. The advantage the butchers derive from them, we can hardly bring to account, but we fancy it is considerable. Finally, we come to the forage of the horses, some 100,000 of which are permanently kept on hand in the ranks, over and above the agricultural wants of the community ; and calculating from the ordinary German ration, of 8 lbs. oats, 10 lbs. hay, and 10 lbs. straw, the actual acreage of land required for their food is somewhere about 250,000 acres. Now, since revenue in Germany is derived principally from land-income and indirect taxation, it obviously hits the wealthier section of the community much harder than the poorer ; and, therefore, through the agency of the army, not only are 450,000 able-bodied men per annum taken off the already over-crowded labour market, and maintained by the community—a strictly socialistic idea—but all the workmen, farm-labourers and tenant-farmers, in number probably another 100,000, are employed

from the same source. It may, indeed, be argued that the country is the poorer by the whole of the earnings of the 550,000 thus employed in unproductive labour, but what would be the gain to it if these same half million and more were thrown on the already over-stocked labour market to-morrow. Obviously the result would be only to still further increase the struggle for existence, and thereby to lower the rate of wages which is already low enough, or to increase the emigration by a corresponding contingent annually. The third point, *viz.*, the diminution of large fortunes—in our opinion the worst feature of the whole, though not from the communistic point of view—is a direct consequence of all the best blood of the country being absorbed by the officers of the army. This is a tax far more felt by the Germans, and, for the matter of that, by all foreigners than by ourselves ; for the proportion of the upper classes serving in these enormous armies is far larger than it is in our own. But these are just

the men who, starting with the better education and the advantages of position, would naturally succeed in civil life, and since there is only room for a limited number of successful ones, an equal number of weaker ones would have to go to the wall. The German Army is not a money-making profession any more than our own, and the officer's pay is a very poor return for the industry and perseverance they display in their duties, which are certainly enough to command success in any walk of life. From our point of view, the only set-off against their loss to the commercial prosperity of the country, we can find, lies in the value of the example of duty for duty's sake they set to the rest of the community, an example which more than counterbalances the monetary loss; for history abundantly proves that in a country in which the sense of duty to the State is lost is already far gone on the road to ruin.

One word as to the "blood-tax" aspect of the question. The statistics of the Ger-

man Army for the last 70 years or so, shows that this accusation is practically unfounded. It would be just as reasonable to talk of the blood-tax inflicted on England by the railway companies, whose annual percentage of victims amongst their servants stands actually higher, while the relative advantages secured by the army stands far higher of the two. Most of us would be glad to put up with a less perfect system of rail-road communication, if we could be certain thereby of securing for our women and children practical immunity from the danger of ever being at the mercy of the French soldiery. At least that is the feeling along the Rhine where the memory of French brutality still exist.

Finally, let us look at the matter simply from the point of a business investment. Taking the loss to the country of the wage-earning power of half a million men per annum, each supposed capable of making £50 a year and adding £10,000,000

more for the expense of maintaining these men over and above what it would cost merely to feed and clothe them as civilians, we get a total annual expenditure of £35,000,000 a year. Now the wealth of Germany has practically trebled in the last 20 years, and if, as Professor Levi calculates, the wealth of the United Kingdom capitalised, is over 10,000 million sterling, we cannot estimate that of Germany, with its larger population and greater area, at less than 6,000 millions. Let us assume it only to have doubled since 1870. Then, for an expenditure of £35,000,000 per annum, and (including the losses in 1870), 2 per thousand of the population in the 26 years, they can shew a return of £3,000,000,000 or a profit in money of over £2,000,000,000; and against that could anybody furnish us with an estimate of what the *cost of defeat* would have been.

IMPERIAL INSURANCE.

THOUGH the question of Imperial Federation has now been under discussion for some time, as yet nothing in the shape of a workable scheme has been put before the public. It is true that the Australian Colonies have agreed to pay an annual contribution to the Imperial Navy, but this contribution is of an entirely voluntary nature, and is, practically, dependent on the tenure of power of particular Colonial Ministries. If war were to break out on any one of the questions which the Colonies in their wisdom do not see fit to class as an Imperial interest—such, for instance, as the maintenance of our influence in Turkey—it is a moral certainty that the contribution would be withdrawn. The chance of raising a storm against whatever Ministries might happen to be in power in the Colonies at the time, on the cry of “the money of the Colonies being lavished to maintain a

bloody war, entered into by a Parliament in which the Colonies had no representation," would be altogether too good an opportunity to be missed. It succeeded once before, and history is known to repeat itself.

But to concede to the Colonies representation in the Imperial Parliament, seems to be altogether beyond practical politics ; to form an Imperial Assemblage, almost equally so, for the House of Commons keeps the purse, and an Imperial Assemblage without money to spend would be a mere shadow at the mercy of the Chancellor of the Exchequer and the British tax-payer.

If this Imperial Assemblage is to be anything more than a dummy, it is absolutely necessary that it must have at its disposal money, which could not be interfered with by any outside power ; and the question, therefore, is—how is that money to be obtained ? The answer to this is simpler than might be supposed. We are all familiar with the expression, "National Insurance," though up to the present day, no working scheme of the

kind has been submitted. The fact is, taken in its widest meaning, it is an extremely complicated subject to deal with ; but if we subdivide it, portions admit of ready and easy treatment, and when we are once familiarised with it by practice, the remainder will probably yield readily to treatment.

The one point on which, up to date, there is an unanimous consensus of opinion, is that it is essential to secure our trade from interruption in time of war. Let us, therefore, devote our attention to this point first. This trade is already protected against all ordinary sea risks, such as fire and storm, by the private agency of Insurance Companies. Let us, therefore, go a step further, and form a Government Insurance Company against war risks, and let an Imperial Conference or Board become its Directors. The recent action of many shipowners, in complying with the Admiralty demands, so as to have their vessels available for service in time of war, proves fully that the owners are alive to the neces-

sity of preparing for the stormy time ahead; and we believe that if such an Insurance Company was formed on a purely voluntary basis, it would be certain to succeed. The rate of premium would be a matter for the consideration of experts. When once in working order, it is obvious that it might be exceedingly small, for had Government started such a business the year after Waterloo, we believe that, up to date, not a single pound's worth of compensation would have had to be paid. Unfortunately it did not do so; hence it falls on us to make the start. The annual value of out ocean-borne trade already exceeds slightly 1,000 million pounds a year. One half-penny in the pound on that enormous sum would give about five millions a year to begin on. With such a sum as revenue, money enough to supply us with a fleet of cruisers such as the world has never seen, could be borrowed. This fleet should be distributed on the various trade routes in proportions determined by the Directors of

the Company. It should be manned by officers and men of the Royal Navy, supernumerary to the ordinary establishment, but paid for by the Company, or Imperial Board, just as India pays for her army. Further, a Sinking Fund would have to be formed to provide for depreciation, and also to meet the war risks, which, if properly managed, would soon set us in such a position, that our trade might defy the efforts of the navies of all Europe. Now the advantages we should derive nationally from such an arrangement, are briefly these: In the first place, the danger of breaking up the union by a war connected with some question with which the Colonies were not agreed, would be reduced to a minimum ; for practically it would not signify to them whether we were or were not at war. Trade would have no insurance against war risks to pay, whilst our enormous fleet of cruisers would practically keep the sea so safe, that even passenger traffic would hardly be interfered with. Again, all dan-

ger to our food supplies, having been removed, the whole of our fighting fleet could be devoted to its proper task, *viz.*, the annihilation of the enemy's ironclads and harbours, and thus the danger to the Colonial harbours also would be reduced to almost nothing ; for they are or will be soon sufficiently defended to have nothing to fear from anything except an ironclad of greater power than our cruisers ; and our actual numerical superiority in ironclads, if we can concentrate them all on one object, is great enough to render the chance of escape for an enemy's battle ship too small to be taken into serious account.

That the charge of one-half per cent. approximately, which we mention above, would handicap our trade, is not to be thought of. For our shipping owners are already spending far larger sums in meeting the Admiralty requirements for cruisers ; and besides, this sum would only be required to commence with. If, thanks to our readiness for war, peace was not broken, or

if broken, our enemies so readily repressed at sea as to reduce our losses to a mere trifle, in a few years a far lower percentage would suffice : till the tax become practically nominal, as already pointed out above.

One great point in its favour is that, no elaborate machinery would need to be created for the collection of these dues, for they could readily be paid to the Customs' officials together with the ordinary duties, or an arrangement could be made with the Under-writers at Lloyds, just as bankers collect the income-tax.

Finally, such a fund and such a Board would be absolutely beyond the reach of Vestry politicians and economists. Mr. Healy, Mr. Sexton, and others might continue to obstruct the Lower House till the Day of Judgment, but their noise could not reach, or disturb the members of the Imperial Board of Defence, who, themselves having no constituents to fear, might do their duty according to their consciences and the best of their understanding.

THE NEXT FRANCO-GERMAN WAR.

AFTER the news that has been coming to us from the Continent during the last few days, the thoughts of a great many people, and of military men in particular, must be engaged with the likelihood of another great struggle between the armies of Germany and France. Many books and pamphlets have been published of late, betraying the nervous anxiety that is universal in either country, which attempt to forecast the character and the issues of the felt-to-be-inevitable campaign. Such, for instance, are the two French brochures, *Avant la Bataille* and *La Guerre Prochaine*, and such is the work of Colonel V. Kœtschan, which was published last autumn, apparently in answer to these, and of which a notice appeared some time ago in these columns. It created, as we know, a con-

siderable sensation in France ; but its contents differ so markedly from the ideas at present current in the German Army, and also are so indifferently adapted to meet the circumstances of the case, that it looks more as if the gallant officer had been detailed to throw dust in the eyes of the enemy than to instruct his own army in their probable *rôle*.

The writer proposes, therefore, to give a general outline of the probable course of events, as derived both from the leading German writers and from the conversation current amongst the officers last summer. In the first place, taking the contingency that Germany would have to meet not France alone, but the allied forces of France and Russia, it is opposed to all the traditional policy and previous plans of campaign to attack Russia before dealing with France. The fundamental principle of Prussian strategy is to make the nearest field army its objective and to destroy that thoroughly first. Now, the mobilization and deploy-

ment of the French Army is calculated to be completed in 14 days, whereas that of Russia on paper takes nearly six weeks ; and those who have studied the latter country in detail, and who are acquainted with the friction which has to be overcome in getting the mobilization gear into running order, particularly where it is being worked, practically for the first time (the mobilization in 1878 was only partial, and furnishes no criterion of the difficulties which would attend a complete mobilization against Germany), are of opinion that, owing to the scarcity of roads and railways and the inefficiency of the *personnel* of the latter, no formed body of Russian troops, capable of seriously threatening the security of Prussia's eastern frontier, could be got together under six months. But in six months in all probability the campaign against France would be decided ; six weeks sufficed in 1870 to destroy practically every organised force in the country, and though a prolonged resistance was

afterwards made by newly-raised levies, yet it is not probable such a state of things would recur again. Not only is the German Army prepared to deliver far more rapid and crushing blows on the next occasion, but there is also a very large peace party in France, who, though they may be goaded into a fury by the prospects the Press hold out to them of a rapid war of revenge, would very soon come down to their normal temperature when they found the revenge going all the other way. Even if the resistance were to be prolonged, the eastern frontier of Germany is so strongly fortified that months would elapse before a serious impression could be made on it by the tardy forces of the Czar.

The same argument might be used with regard to the French line of fortifications. But three points must be borne in mind : in the first place, there are certain inherent defects in the profile, flank defence and situation of these forts which do not exist in the east Prussian ones ; secondly, they

will have a much shorter time for preparation owing to their proximity to the frontier than have the German ones ; and thirdly, the difference of the training and discipline of their garrisons must be taken into account.

This latter point cannot be overlooked : it is the almost universal opinion of those Englishmen who fought side by side with the French in the Crimea, and have since watched their career of defeat, that even the Field Army cannot bear comparison with the old Imperial Army ; and that, owing to the spread of democratic ideas and their results, the condition of the territorial army is altogether worse. There is this essential difference between the systems of the two countries, though on paper they appear to be identical. The German system does not make a man a discontented radical, but, on the contrary, a staunch upholder of authority ; the action of the French system is precisely the reverse. The reason is not far to seek, and is too important as

bearing on the whole question to be passed over. The German officers are socially gentlemen; the French, as a class, are not. The German soldier not only does not consider himself the equal of his officer, but it is demonstrated to him practically that he is not. The German knows his officer as the man who teaches him everything (not as the one who cuts his pay and interrupts him at his meals), and who watches over and protects him against the tyranny of the non-commissioned officer, which is at times a great trouble in Germany. In fact, the officers as a body have so completely won the respect of the nation by their courage in action, their devotion to their duty, and their high sense of honour, that, on the whole, a most willing obedience is rendered to them ; and they are enabled to keep up the most rigid discipline in Europe with perhaps the smallest amount of punishment. Hence, when at the close of his service, a man passes to the Reserve, it is generally with a cordial feeling towards

his *vorgesetzter* (leader) which renders him all the more amenable in case he is called out again. It cannot be too often insisted on that the German military system is not, as is frequently supposed, a manufactory of discontent and socialism, but is rather a gigantic finishing school in which the priggishness born of book-learning is knocked out of a man, and his character developed and strengthened by the habit of obedience and lessons of endurance. But in France all this is different : discipline and republicanism are two opposing forces which it is impossible to bring together as the history of the Revolutionary armies and the Napoleonic dynasty sufficiently proves.

The German plan of campaign is based on a rapid offensive. The only way to neutralise the French line of forts is to take advantage of their comparative state of unreadiness : a condition which must always obtain more or less in modern entrenched camps, and rush them as soon

after the outbreak of hostilities as possible. With this view every effort has been made to enable the troops on the Rhine to move off immediately on the declaration of war. The Cavalry divisions are always ready to take the field at 12 hours' notice, and the Army Corps nearest the frontier will, in all probability, move off within 48 hours, without waiting for the whole of their Reserves to come in. It must not be forgotten that, in the relatively densely-populated valleys of the Rhein, Saar, and Moselle, the Reserves are much more easily drawn in than in the sparsely-populated eastern districts.

The whole of these troops are provided, or will be shortly, with double lines of rail to the frontier, and though the German writers still maintain that the former rate of 24 troop trains per day on a double line cannot be exceeded, yet from remarks I have heard from time to time, I believe that very important additions to this number have been made. It cannot have

escaped the Germans that many of their through lines already accommodate a far larger number of trains than this at varying rates of speed : and that, therefore, if attention is directed to preparing the requisite sidings for the entraining and detraining of troops, no difficulty whatever exist in forwarding three times this number of trains.

In England, our traffic managers are prepared to forward over any main line 180 troop trains per diem, and many are prepared to send more ; and there seems no reason why the Germans should not approximate, at any rate, to the same number. To support the troops thus set in motion in their attack on the forts, light siege trains are kept ready in all the frontier fortresses to take the field at the shortest possible notice ; and, though I am unable to state the exact details for horsing them, yet the fact that the steady persistent attention of the authorities has been directed to this subject for the last ten years, is a

guarantee that this branch will not be found much behind the other arms in point of efficiency.

The object with which the French line of frontier fortresses has been constructed, is to provide a screen behind which the Field Army can be mobilized, and hence it is essential to the Germans to secure the possession of a sufficient number of these to permit of the deployment of their army beyond them at the very outset of the campaign. Their chances of success depend chiefly, as already pointed out, on the defective profile, defects of site, and on the difficulty of placing them rapidly in a state of defence. This latter defect is the chief point. Owing to financial considerations, it is utterly impossible for any nation to keep its frontier forts always ready for war. Within the range of existing weapons, houses, buildings, and even woods, must be left standing till the last moment, and the work of destroying and clearing them away swells to an enormous

total. The mere matter of organising the labour is in itself a task not to be disposed of in a day, and this has to be done at a time when the whole market is disorganised by the excitement of coming events and by the bulk of the labouring population being called in to the flag. The work to be done before many of the French fortresses is exceptionally arduous; the ground does not slope in easy undulations, but is very complicated; and, in addition to this, large stretches of forest have not been cleared away. The difficulty of adapting fortifications to such a site is almost insurmountable. Even before Paris we could point out places where it would be possible to mass 15,000 men out of sight and within 500 yards of some of the new forts, and on the frontier matters are even worse. And, it must be remembered, that every detail of this nature can be studied in peace time by the enemy. Besides, engineers generally have presumed too much on the power of the weapons at present in use,

and have forgotten to take the factor of human nature into account. Everywhere, not only in France, they have built works at such a distance apart that the slightest accident of a morning mist, or a storm, or rain may be sufficient to destroy their powers of mutual support. They build works which can be defended by steady resolute troops, but forget that, by the very nature of the case, these will be the last to whom the defence is intrusted. Every efficient man will find employment in the Field Army, and practically the least reliable will be left behind.

The multiplication of posts is also a danger, for it is impossible to find commanders of equal capacity for all, and the strength of a chain is only equal to that of its weakest point.

Again, it is not necessary for the Germans to attack in the first instance the large fortified camps; these can be dealt with at leisure. All they require is the possession of a certain number of the

isolated so-called barrier forts : these do not support each other mutually, and can therefore be completely surrounded. They will be attacked by batteries of a couple of hundred field guns, supported by the light siege trains, the latter firing the new gelatine shells. (The secret of these shells has been well kept, and the precise nature of their detonating bursters is not known—it is said to be some form of blasting gelatine.) It is difficult to picture the condition of such a fort after a few hours' exposure to this fire. The earthworks will probably not be much damaged, but the storm of shell and also of Infantry bullets (for this is just one of the occasions on which long-range Infantry fire can be advantageously employed) will certainly prevent the appearance of any man on the ramparts. And since, owing to the considerable command of these ramparts, the Artillery fire can be continued up to the very moment of assault, there is not much danger to be apprehended till the assault-

ing columns are actually in the ditch. Then the defects of profile and deficiency of flank defence come into play. As a rule—and the Germans are perfectly aware where the rule is broken—the profile consists of a detached wall, a very narrow ditch, and an altogether inadequate height of counterscarp, in some instances not exceeding 15 feet, down which resolute men will readily drop. The fire of the light siege howitzers will have completely ruined the wall, which is merely a 2-feet brick or masonry one, of about the same height as the counterscarp ; and the only difficulty to be overcome in crossing the ditch will be the fire of the caponiers, which will presumably have also suffered considerably. Even if they have not, they mount so few guns, generally only two breech-loading smooth-bore carronades, on non-recoil carriages, which certainly fire faster than the old muzzle-loader, though only in the proportion of three to two ; and the time during which the assaulting

troops are under their fire is of so short duration that it is hardly possible they will succeed in stopping the advance altogether. If in the days of the Peninsula 14 guns firing on the breach at Badajos did not suffice to stop the rush of the British troops, though, owing to the obstacles on the breach, they were exposed to this fire for about half-an-hour, we see no reason why German troops should be stopped by, say, one-quarter of the fire, lasting only a few seconds. Besides, it must not be forgotten that there are ways of silencing the fire of guns from a confined casemate now-a-days, which were utterly impossible to the attacking troops at Badajos : for instance, a two-pound cake of dynamite, fused and attached to the end of a long bamboo, can be thrust into a loophole, where the carbonic oxide caused by its explosion would poison all the defenders, or, may be laid against the projecting muzzle of a gun, which its detonation would bend or fracture. Similarly

musketry loopholes may be masked by bales of cotton or in a dozen other ways.

Once inside the detached wall, the stormers are in comparative safety and can get their breath for the final rush, whilst Artillery brought up to case-shot ranges and firing parties of Infantry sweep the crest of the parapet and prevent the enemy showing their heads. As soon as a sufficient number of men are collected, the last rush can be made, and it is not likely to meet with any very serious resistance. There remains then only the casemated barrack or interior reduit: but against its fire the attacking party will find sufficient shelter in the shell craters on the parapet and behind the parapet itself. From this position they will be able to bring, as a rule, the fire of ten rifles on every loophole, so that, however well maintained the fire through these may be, it is not likely to be very accurate. If the defender still holds out, the reduit must be breached, and this may be effected

in various ways—for choice perhaps the rolling of an enormous sap-roller of pressed cotton, filled with half-a-ton of dynamite, is as good as any—and then the only course left for the defender is to surrender or be blown up with his whole barrack ; in either case the enemy has gained the required point. From defensive mines the assailant has not much to fear. To begin with, it is not likely that at this early date in the campaign they will be loaded. This perhaps looks like assuming too much, but it must not be forgotten that the whole German plan is based on the known unreadiness of their enemy. Had they known him in 1870 as they do now, they would have followed up their success on the 19th September before Paris and have stormed the city itself ; and it is now admitted by the French themselves that such an attempt would probably have succeeded, though they had been at work on the fortifications day and night for six weeks. Even if the mines were loaded, their explosion would not

suffice to check good troops. The gigantic mine before Petersburg in 1864 did not check Grant and his Northerners; and though Germans are not Americans, yet they possess a dogged devotion to duty, quite as high and better under control than the personal determination which in the latter period of the Civil War distinguished both parties; and the German leaders have shown themselves as reckless of life and as determined in the prosecution of their object as ever did Grant or Sherman.

Besides, mines when fired make large craters, which form ready-made trenches for the assailants, and it is therefore unlikely that a determined commander, relying on his power of beating off the assault, would fire them at the right moment. To do so, and then to repel the assault, would be to give the attack the very cover it would otherwise be compelled to earn by days and nights of sap and trench work.

The whole idea is not in accordance with the spirit of war as inculcated in English

text-books ; but then the two nations start from utterly different premises. To us men are everything ; money is nothing. In Germany their value is reversed. An English General, especially at the outset of a campaign, cannot afford to risk his army, for he does not see his way to replacing it. How this feeling hampers an English leader is obvious from the history of the Crimea. Had our commanders possessed the necessary determination to attack the Star fort, two days after the battle of the Alma, it is certain now that the storm would have succeeded ; and even had it cost us 10,000 men, and half would probably have sufficed, what would that have been to the sacrifices the siege eventually cost us ? It is worthy of remark that our system is precisely identical with that destroyed by Napoleon wherever it opposed him in person. The Austrians and Prussians, by trying to gain by manœuvre what could only be gained by fighting, were defeated everywhere till they began to learn

the lesson themselves. This lesson, though certainly written in characters of blood all over Europe, has been pretty generally forgotten by all except the Germans—most of all by the French.

It was the Napoleonic system, worked by German heads, that crushed the latter, and it will be by the same system that they will again be defeated in the coming campaign, for there is no sign as yet that, as a nation, they have learnt the lesson.

THE GERMAN OFFICER.

THERE is, perhaps, no question more frequently addressed to a man supposed to have a personal knowledge of the German Army than : "What do you think of the German officers?" This is a question easier to ask than to answer ; for there are many kinds of German officers—not only Infantry, Cavalry and Artillery, but Prussians, Hannoverians, Hessians, &c., who all possess more or less their own individuality. It may, therefore, be not without interest to the readers of this paper to lay before them as full and fair a description as space will permit.

The first point to notice is the method by which officers are elected to regiments in the first instance. Passing an examination gives a German no claim to a commission any more than any number of examinations would give one a claim to a military club. He must be an acceptable person to his brother

officers, as well as to the Civil Service Commissioners ; and we cannot help thinking that many of our own regiments would be pleasanter to live in if this rule obtained with us. His fate is not settled without due inquiry and the lapse of sufficient time to enable his brother officers to judge of him. First, he must be accepted by the Colonel, who, owing to the territorial system, is usually sufficiently acquainted with the county to which the regiment belongs, to be able to judge whether his social position is good enough. The Germans in this respect are still the most particular in Europe ; far more, indeed, than we are, and so far at any rate they have had no cause to regret it. The Colonel having agreed to accept the candidate, he is then posted to the regiment as an *Avantageur* : he is allowed, and indeed obliged, to live at the mess, but drills as a recruit, precisely as our own young officers do. At the end of a year, if he is satisfactory from the Drill Instructor's point of view, the officers of the regiment are

assembled and called upon to decide whether they will have him or not. It is needless to say that, in an army as strictly disciplined as the German one, no frivolous objections of the kind so frequently made the excuse for hunting a wretched man out of the Service, by the exercise of the most cowardly species of bullying, on a par with what, when called "rattening" at Sheffield amongst knife-grinders, entails penal servitude on the delinquents when detected, are for one moment allowed ; the objections, if any, must be stated in writing and forwarded for the inspection of the Corps Commander, who, in case he thought them frivolous or malicious, would report to the Emperor, and the consequences would be sharp and severe.

We cannot help dwelling a little on this point ; for it is one of immense importance to every officer in the Army, considering the terms on which they have to live together in a regiment and the vital necessity there is, that on service they may pull well

together : it is not fair on them to pitchfork any successful candidate at an examination into their ranks. When it occurs, as it sometimes does, it inevitably, and from motives of self-defence, leads to the individual being bullied out, and that in a manner, too, which is usually disgraceful to all concerned. These things cannot in the long run be kept hid ; and when the accounts filter across to other armies, they produce an impression far from favourable to our cloth. We remember hearing some years ago a German officer of some standing and well acquainted with the British Army, discussing the disappearance of Lieutenant Trübe (the general impression in the German Army, by the way, is that he was murdered by his brother officers), and his words, though spoken temperately, would have made any Englishman blush for his country. We were talking about duelling in the German Army, and he pointed out how such a scandal could not have arisen in a Prussian regiment. The aggrieved

officer would have called out one of his persecutors, and the matter would then have been laid before a court of honour, composed of officers of other regiments, who would have decided whether there was a case for fighting or not : if the one found by the court to be in the ~~wrong~~ refused to apologise, he would have been made to fight or go. If he ~~fought~~^{won} and killed or wounded his antagonist, he would first of all have been tried by a civil court and sentenced to a considerable term of imprisonment in a fortress, and on the expiration of that term, his name would have been cut out of the Army List by the Emperor. If, on the other hand, the aggrieved man had killed his antagonist, he too would have had to stand his trial : but the Emperor would have pardoned him next day. "I will stand no bully in my Army," the Kaiser said on one occasion ; "but also I will not keep a man in my Army who is not prepared to defend his honour : " and it would be a good thing for us if the same sentiment

obtained in our own ; we would be saved many a scandal which now furnishes food to its detractors in the Radical Press.

But to return to the young officer: Having been duly elected to his regiment, he is next put in charge of one of the older sections of his company, and generally has the senior subaltern to look after him ; but not till he has been three or four years in the Service is he entrusted with the responsibility of a squad of recruits. On the way he acquits himself of this task his future for several years to come depends ; and the man, who at the end of the recruits' training is considered to have done best in the regiment, may be considered a marked man.

This giving of full responsibility to a young officer is the keynote of the whole German system, and is undoubtedly the point to which they owe the excellence of their officers as a body. The Captain is responsible for every detail of his company, the only condition being that, at the com-

pletion of the training, it must attain a certain standard of excellence which is laid down by order. But the method of bringing it to this standard is left entirely in his hands. In practice, of course, certain methods have approved themselves by long experience, and hence there is a certain appearance of routine about the training ; but the Captain is in no way bound to adhere to that routine, and no Colonel or Major, still less an Adjutant, would dare to interfere with him, except, perhaps, by a few words of friendly counsel. He delegates his responsibility similarly amongst his Subalterns, having due regard to their age and experience ; and within those limits the Subaltern is practically as independent as his Captain. The consequence is, that a body of officers is formed, all of whom are trained from the day of their joining to act on their own judgment ; and it is only through this quality, constantly cultivated through a long series of years, that the leading of the monster armies of the

present day has been rendered possible. It may be granted that, at the outset of a campaign, such a readiness to assume responsibility may have its drawbacks, as indeed it had at Spicheren and Borny ; but, on the other hand, its universality throughout the whole Service robbed it of half its danger : whereas it is hardly possible to conceive armies of these dimensions manœuvred on the principles of the great Duke. It is in this, and in the uniformity of training received at the military schools and also in the regiment, based on general principles and never on details, that the German superiority over all other armies rests. A German Staff Officer in drafting an order knows that it is sufficient merely to indicate the object aimed at to ensure its execution. Things may not be done with the pedantic uniformity once so dear to them (and to us perhaps still) ; but the orders will be interpreted in the spirit, and by a method adapted to the actual circumstances of the case on the ground, which can never

be exactly the same as they appeared to the writer of the order at a distance. By this means the "friction" of moving large masses is reduced to a minimum. Let any one interested in the matter look up the Corps Orders issued at various times during the 1870 campaign and printed in the *Prussian Official*—any one will do, and consider how far they would have carried on English corps in the movement. Why, from the divisional commanders downwards, everyone would have been sending in to know how he was to carry them out.

An English Staff Officer has to carry in his head the peculiar idiosyncrasy of every man under his Chief, and frame his orders accordingly. General A perhaps does not believe in Artillery, and requires to be instructed in the elementary principles of its action on the eve of battle. General B thinks Infantry can trot; or General C thinks that Cavalry are a useless hindrance, and does not know what to do with them; and so on through the scale.

The German officer is not, as a rule, a very highly-read man, nor is he the accomplished linguist we are sometimes invited to believe him to be. The truth is, he is altogether too much taken up with the practical duties of imparting instruction to have time for the study of either contemporary military literature or languages; and besides, with regard to the former, feeling his knowledge to be firmly grounded on general principles which never change (to be found in their drill book but alas ! not in ours), he does not feel any particular necessity for study, whilst, with regard to languages, if he can make an average Frenchman understand him, it is about all he requires.

Taking the ordinary summer months, a Subaltern or a Captain rarely gets more than time enough for his meals between sunrise and sunset, and the mere physical labour of the drills is very severe. We have known many a Lieutenant who has daily had to cover from 25 to 30 miles on

foot, and under a pretty powerful sun too. No wonder that they do not appear to be devoted to the manly sports of cricket and lawn-tennis (the latter, by the way, has been specifically prohibited by the Emperor) but, *en revanche*, they are generally good gymnasts and swordsmen.

But the truth is that, were it not for their incessant occupation, the life of a German officer would be almost unendurable, and their leisure a torment. It is hardly possible to realise the terrible dullness of a small German cantonment. The hot weather in the plains here is bad enough, but still it is preferable, for we all know that sooner or later a change will come. But with them there is practically no prospect of release. Even if they are on a railway, trains are so slow and the places they lead to so uninteresting that there is not much object in going away : besides, travelling costs money, and money is very scarce in the German Army. To make matters worse, Germans do not seem able

to get on together as well as Englishmen : four English Subalterns huddled together in a troopship manage to shake down without much trouble, but four Germans would not, even if they all came from the same country ; but where, as in a regiment, Nassauers, Hessians, Prussians, &c., are all mixed together, agreement is scarcely possible. For though the general principle of the Army is territorial, yet the absorption by the Prussians of the armies of the smaller States has necessitated a considerable departure from the system. In order to obtain uniformity of drill and also of promotion, the south was deluged with Prussian Officers, who, not being the meekest of men, and having been only recently opposed to the others in the field, did not assimilate with the others very readily ; and those officers, transplanted from south to north, found themselves isolated amongst unsympathetic comrades, and had even a worse time than the others. All this happened sixteen years ago, but amalgamation

is as far off as ever ; nor need we wonder at it, when we consider the opposition shown to the old members of the Bengal Army when, after the Mutiny, it was absorbed by the Royal Army : why, the feeling is by no means dead yet, though in this case there was neither difference of nationality, nor had the two been fighting against each other, but shoulder to shoulder.

From time to time spasmodic efforts have been made to render the wearing of uniform in the English Army compulsory, in imitation of the custom prevailing in Germany ; but, as is usual with the authorities when they attempt a copy of anything German, they overlook two or three very important points. The first of these is, that if the Queen's or the Emperor's uniform is to be worn at all times and in all places, it must be protected by law against any possibility of insult ; and since no such an attempt on it is likely to be made in places where guardians of the peace are on the spot to prevent it, the execution of the law must

be confided to the wearer of the uniform in person. This is done in Germany by empowering, or rather compelling, the officer never to appear in public without his sword, and to defend himself or punish any treasonable or disloyal insult to the Crown uttered within his hearing with it and with no other weapon. Now, in a country where Socialism or Radicalism is rife, such a privilege would be, and indeed is, a very awkward one to bear, as the following example will show. A German officer a few years ago entered a *café* in one of the Rhine cities, and finding himself alone, took off his sword and hung it up before sitting down. It happened that his seat was at some distance from the pegs where he had hung up his weapon. Presently a couple of "demagogues" ("vessels filled with beer or other liquors according to Mark Twain") entered and sat down opposite to the officer, and quickly noticing that he was unarmed, began to abuse the Emperor and the army. The officer warn-

ed them twice that if they did not desist, he would have to put a stop to it, but was only jeered at. So he rose, went to where his sword was hanging, drew it and, returning, ran one of the Socialists through the body. The Court of Honour assembled to investigate his conduct, acquitted him of all blame in having killed the man, but cashiered him for disobedience of orders in having removed his sword, for, had he not done so, they said, the provocation would not in all probability have been given. It must be noticed, too, that in these and similar cases the right to draw the sword is not merely permissive, but compulsory—failure to do so would entail cashiering, even if the officer managed to defend himself with his fists. Instances of attacks on isolated officers are by no means unusual in the large cities, particularly those which, like Leipzig, are centres of Socialism. At present in England, particularly in the south, the Queen's uniform, when worn by an isolated individual, is still too rare

to excite anything but the best feelings of the civilians who encounter it ; but we fancy that, at times, in the northern towns the obligation laid upon the German officer would be found rather trying to bear. But it is obvious that, if officers are to be obliged to wear their uniform, some such power must be conferred upon them ; for the result of any such attempt to assault the wearer must be independent of any question of the physical strength of the latter. There must be no question of punching of heads or knocking down, for the issue of that sort of contest depends practically on the physical superiority of one over the other ; and, allowing all we can for the "blood will tell" theory, circumstances often occur when "blood" alone can have no chance, particularly in an army whose service is as trying to the constitution as ours. What chance, for instance, would a wretched young subaltern, sent home to the dépôt more dead than alive with fever, but pluckily sticking to his duty, have in a row

with a burly north country mechanic as hard as nails and certainly not deficient in pluck?

Secondly, the mere physical strain on a man of being compelled to wear the same hot stifling dress at all times and in all seasons must be taken into account. The heat in Germany in summer is at times terribly trying, and many a man is broken down by the additional unnecessary fatigue imposed upon him who would otherwise have pulled through the season without injury. When one of these really hot spells come, the German certainly has to undergo tremendous hardship, for there is simply no place except his own quarters—not generally very luxurious or airy—where he can get away from his incubus. For choice I would rather spend May and June in some central plain station, such as Agra or Muttra, than a summer at Strasburg or Mayence in a German uniform.

The question of expense has also apparently escaped the attention of our would-

be Germanisers, which, considering their anxiety to curtail the "boundless extravagance" of an ordinary subaltern's mess bill, ought not to be the case. Uniform in itself is invariably more expensive than plain clothes. Whilst being the outward visible sign of a caste, so to speak, it is incumbent on the wearer to keep it up with to a degree of smartness altogether unnecessary in plain clothes. Provided a man looks like a gentleman, his plain clothes may be as simple as he pleases ; but in uniform he is obliged to keep up to a certain standard, fixed without any reference to his pocket whatever. Now, in a regiment a man's means are more or less well known : so, as long as he turns out for his duty with clean spurs, gloves, sword, &c., no one thinks of being down on a man if his tunic or jacket is a shade old and, perhaps, white at the seams ; but in the streets it is different. For the honour of the regiment he must turn out smartly, as people have not time to enquire into the merits of the case.

This, at any rate, is the way in which the system works in Germany, Austria and Italy (whether it is that the British soldier's eye can never get accustomed to the cut of the French uniform or not I cannot say ; but the feeling does not seem to exist to an appreciable extent in France) ; and since human nature is pretty much the same everywhere, I fancy it would work in the same way in England, and the young subaltern would find himself plunged into a sea of debt to which his regimental subscriptions would be mere child's play. I remember once discussing this question with a German officer, and after allowing for the different wear and tear of our gold lace to their silver lace (ours lasts much longer), we came to the conclusion that, to keep up to the same standard of smartness as that which is simply compulsory in the German Army, it would cost an infantry subaltern between £70 and £80 a year, and in the cavalry probably double. I need only mention one point to show how parti-

cular they are : It is considered absolutely essential that for the Emperor's Inspection every officer as well as every man should turn out brand new—tunic and all—I remember a Hussar bitterly lamenting to me that in five years he had had three Imperial Inspections and had had to get three jackets, each of which cost him, by the way, about £18 even in Germany. Now the British officer possesses quite as much personal vanity relative to society—which practically means women—as any other soldier, and the prospect to those careful guardians who are always preaching against the reckless extravagance of the wicked regimental mess looks gloomy, indeed, if the wearing of uniform should ever be rendered compulsory.

Whilst on the subject of messes, it may be as well to mention that the most strenuous efforts have been made of late years to provide every regiment with a mess on the English lines ; and at this date almost every one, except some of those in Alsace-

Lorraine and others on the eastern frontier, is provided with them : and since the headquarters of German regiments are practically stationary, they have, as a rule, attained a very fair degree of comfort, even of luxury, from a German point of view, which point, however, differs somewhat widely from our own. It has been found, too, as might have been expected, that the result has been decidedly in favour of economy ; for whereas the former custom was for officers to dine at table d'hôtes at the principal hotels, they now dine better and much more cheaply at their messes. Thus the charge for a mess dinner at most of the messes with which I am acquainted varied from 1s. 6d. to 2s. The charge at the hotels was rarely less than 3s.—a considerable difference. But the spirit of mess-room life is a plant of slow growth, and owing to the causes to which I referred in the previous article, *viz.*, difference of nationality, &c., and German mess-room is far from being as comfortable a home as

an English one. Besides, the wearing of uniform, the innate officialism of the German race forms a bar to the pleasant familiarity of our English regimental life. A German can never lay aside his rank, and has also a much greater desire to assert it than an Englishman, hence there is a tendency to split into cliques more or less according to rank, and to seek freedom from formality in the "*bier kniepe*" in preference to the mess. Thus every officer has his special beer club to which he resorts in the evenings. Usually a certain table or room is reserved for the officers at the principal beer "*Localen*," and round or in it the particular clique gathers every evening and drinks. To an Englishman, after the novelty of the thing has once worn off, the monotony of these reunions is simply appalling : leading a helplessly localised sort of life, there is little or nothing for them to talk about. Shooting, hunting, or cricket being almost unknown, are not touched upon. Racing

rarely, except with the cavalry. Tactics after the war certainly were liberally handled, but of late there is such uniformity of opinion on all points practically that one learns very little about them ; there is really nothing left for them but garrison "gup," commonplace details of commonplace lives—and anything more tedious can scarcely be imagined. But, though often admitting himself to be terribly bored by it, the victim gravitates there by sheer force of habit. The amount of beer consumed during these evenings is something appalling. An average man will generally manage his six pints a night : some as many as eighteen ; and whilst putting this away, he will smoke from four to eight Hamburg cigars. The smoke and smell in these dens is indescribable, and were it not for the walking exercise, they are compelled, in the course of their duty, to take, it is difficult to understand how men could survive it.

Here is a type of a German officer's day

in the early summer. Parade, five or half-past five : having been called late, and feeling, perhaps, a little "gummy," he has no time or inclination for *chota hazree*, but hurries out to his work, which we will suppose to be for the day "*Feld dienst Uebung*" (say, minor tactics). The distance to the drill ground (I have a particular town in view) is six miles, the last mile over a heavy *kutchra* track : the drillground itself is deep sand—deeper by far than the worst of the Long Valley, cut up in places by low ridges and copses of stone pine, the only shade within miles, and the name of this place of torment is "The Great Sand." Having doubled about over or rather through this desert till about 10 A.M. with only very occasional stand easy's, the march home commences, and the company swings in at something over four miles an hour, generally singing as they go. They get back to barracks about 11-30, and then the officer has a moment to rush off and get some breakfast ; but his dinner hour

being at one and orderly room at 12-30, he cuts that meal very short—generally some bread and cheese or an anchovy toast with two to three pints of beer—and then rushes off to change for orderly room, which, owing to the very low average of crime in the army, generally lasts only a few minutes, and he then has time to look at the papers before dinner. Dinner lasts about an hour, and at about half-past two or three the companies fall in for squad drill or musketry, as the case may be, if they do not go to the range that afternoon. At four or half-past four they change to gymnastics, or twice a week to bathing parade, which may entail a couple of miles more down to the water. At six o'clock they are dismissed, and from this time forward *all* the rest of the day is the officer's own, to do what he likes with. He generally goes for a stroll with a "*Herr Kamerrade*," the objective of which is invariably a "*bierhaus*," of some sort, and having slaked his thirst, strolls back again to get up

another thirst for the "*kneipe*," where he arrives about 8 P.M. and sits down to a frugal supper. As to food, though not as to beer, it is a matter of taste more than necessity, and the average officer thinks a Welsh rarebit or half-a-dozen anchovies on toast amply sufficient animal food with which to settle his half-dozen pints of beer. The remainder of the evening I have described above. It usually ends about 10 or 11, and then the party breaks up to seek a few hours' rest before beginning the same weary monotonous round over again. Fortunately, as few of them have ever known any other existence, they are perfectly well satisfied with it.

Promotion in the German Army is rapidly approaching that condition of stagnation which it attained before the campaigns of 1866 and 1870, when, it is said, sometimes father, son, and grandson might be found in the same company. In fact, hitherto it has practically only been maintained at all by the large augmentations the army has

from time to time received, and the recent increase just voted by the Reichstag will be hailed with delight by many a grey-headed old captain. There are no such things in the German Army as five-year commands : a man gets his command and holds on to it as long as he is physically fit or till promotion. To all applications from general officers for permission to retire, the Emperor points to his own age and requests them to stay, and to such an appeal there can be but one answer. The general system for promotion in the regimental ranks is seniority tempered by rejection ; for higher commands, selection with a leaning towards seniority. Under such a system it is evident that, unless the rejection is carried out with considerable rigour, a complete block must soon result. But it must not be supposed that rejection is in any way dependent on success or failure in a written examination : once a German officer has had his commission confirmed, he is safe from all further paper troubles. He

is judged entirely by his regimental superiors, who, to prevent any marked piece of tyranny being practised by any sour-tempered martinet, are in turn watched by a confidential and absolutely secret board of officers, chosen by the Emperor himself, which travels about either singly or collectively, and makes itself acquainted with their personal characters of regimental or battalion commanders. The idea of this secret board appears at first sight very objectionable to our English notion ; but after all it does not compare so unfavourably with our own plan of confidential reports, with the evils of which, when employed by an unscrupulous man, our army is unfortunately too well acquainted. Any way, it must be admitted, that some such check as this is absolutely indispensable to prevent the large power with which commanding officers are entrusted from degenerating at times into the most atrocious tyranny. The German subaltern or captain need have no fear of being judged without fair and pro-

longed trial. The large amount of responsibility with which, as pointed out previously, he is entrusted from the very commencement of his career, gives his seniors ample opportunity of judging of his fitness to be entrusted with more ; and their opinion will be the result of observations extending over a term of years, and not the hasty impression derived from a hasty perusal of some paper matter by an examiner who is totally unacquainted with the character of the writer. Of course the value of this method depends entirely on the responsibility granted to the young officer : without that the whole scheme breaks down, and it is therefore, unfortunately, entirely inapplicable in our own Service at present. Such a system cannot be worked without friction, and occasionally hard cases are certain to occur ; but, on the whole, there is no doubt that the German officers are well contented under it. This may be held to be entirely due to the absolute confidence the army feels in its

Commander-in-Chief and his Chief of the Staff : with such men as these there can be no suspicion of favouritism or any other unfair influence. What other army can feel equal confidence in its leaders ?

It is amongst the company and squadron leaders that the chief weeding out takes place, and more generally on account of physical incapacity than for any other reasons. As may be gathered from our previous description of a German officer's daily life, it is a somewhat trying one, and a good many men break down under it : it must be borne in mind, too, that, as a rule, Germans age quicker than Englishmen, and have a much greater tendency to run to fat. On the other hand, they suffer under none of the disadvantages of climate to which we are exposed, and thence their actual percentages of invaliding and death-rate are below ours. Financial embarrassments also remove a certain percentage, particularly in the Cavalry ; and since there is but little of that intense feeling of

camaradie which is so notable with us, there are men who are only too ready to seize hold of any such handle against a man to get him removed as a disgrace to the honour of the cloth. Perhaps it is owing to the humdrum monotony of their existence, or the intensity of the competition for survival ; but at any rate there seems to be a woeful lack of that loyal friendship that exists in our own regiments, and which, though it may sometimes act prejudicially to the interests of the Service, is, on the whole, a benefit rather than the reverse. Still, all these means taken together do not suffice to keep promotion from stagnation ; and hence, since it is absolutely essential to secure a certain proportion of younger blood in the higher ranks, a way is opened for men of special ability through the *Kriegs Académie* or Staff College. Candidates for this institution are first selected by the corps commanders, and have then to undergo a qualifying, not competitive, examination in military subjects. The

course of study is two years, after which they are attached for two more years to the Head-quarter Staff at Berlin, under the immediate eye of the Chief of the Staff himself. During these two years, besides the routine of the sections to which they belong, they are called on to solve tactical problems on the map, which, till lately, were set and examined by Moltke himself. One feature of these exercises was that only a limited time was allowed for their solution, and no books of reference or intercommunication between the students admitted. In fact, it was a species of weekly or bi-weekly examination. Afterwards the class was collected, and Von Moltke delivered a verbal critique, always based on the simplest rules of common sense and first principles ; and by this method that wonderful uniformity of ideas and execution, on which the whole secret of the Prussian leading is based, has been attained. On the conclusion of this two-year term, the officers return to regimental duty, not

to their own regiments but to others, generally of another branch, in which they are given promotion to the next rank. If considered fit for further employment, they are recalled again to Berlin on the occurrence of a suitable vacancy. The appointments are generally for a term of five years, at the expiration of which the officer goes back to another regiment again with a step in rank.

If, on the whole, promotion appears to be slow in the German Army, it must be remembered that when it does come, it is worth having. Rank has not been cheapened to the same extent by giving honorary and relative rank to the non-combatant branches of the Service, and the responsibilities attaching to each grade are much higher than in England. A captain enjoys far greater independence with them than a major with us, and is also a mounted officer. A major commands a battalion, and does it, too, without the assistance of a lieutenant-colonel second-in-command. The

difference in the pay of the ranks is also strongly marked. Thus, a 1st Lieutenant of Infantry draws £54 a year regimental pay which, with allowances for quarters and lights, &c., will be increased to about £80. A captain draws £180, or, with allowances, about £220 ; and a field officer commanding a battalion, £270 regimental pay, and about £45 allowances in addition. Considering the difference in the value of money and the more economical style of life usual in all Germany, it will be seen that above the rank of subalterns the officers are not badly paid.

One thing will, I hope, be apparent from this and former articles, and, that is, that the keystone of the efficiency lies entirely in the integrity and ability of the Emperor and his Chief of the Staff, and in the absence of all cliques, whether political or personal, in the army. Were it not for the absolute confidence placed by the officers in their Commander-in-Chief, the system could only work with great friction and

loss of efficiency. But such confidence can only be felt in tried leaders placed socially above party interests or personal ambitions, and such men are only to be found in Royal families. Look at France, and ask whether any man could feel the same trust in the present head of the army in that unfortunate country : Republicanism and military efficiency are two hopelessly irreconcilable terms.

It will be seen, too, that, just as in the case of short service, the conditions with which we have to deal are so totally different from those of the German Army, that an exact copy of their system would not be practicable, even if we had the men to work it. But there is one point, and that of the greatest importance, which is easily and readily adaptable to our circumstances, and that is the delegation of responsibility on a larger scale to our junior ranks. This system has, indeed, been in force for years in the Royal Artillery, and no one can feel inclined to quarrel with the result ; for as

regimental officers, the subalterns of the "Royal Regiment" are second to none.

In conclusion I wish, as far as lies in my power, to clear the German officers from the charge one so often hears against them of ill-treating their men. During the whole of my experience I have never once seen a German soldier struck by his officer, and I am convinced that in this respect the men are as well off as our own. It is utterly contrary to the whole feeling which prevails in Germany on the subject of the honor of being the wearer of the Emperor's uniform, which, be it remembered, is treated with too much respect—far more respect than, I grieve to say, is shown to Her Majesty's—for such a thing to occur without the offender being immediately dismissed the Service.

THE GERMAN CAVALRY.

THERE is, perhaps, no branch of the German Army from which we have more to learn than from their cavalry. Taking into consideration the enormous difficulties they have to contend with, the results they achieve are little short of marvellous. The first and greatest difficulty lies in the shortness of their service, which is the same as that of their Infantry, namely, three years ; the second lies in the difficulty of securing suitable recruits. The Germans are not naturally a race of horsemen, and the cavalry officers complain bitterly of the little care which is taken in assigning to them a suitable class of recruits, only those men being told off to them whose physical conformation renders it unlikely that they will make good marchers ; and in except a few favoured regiments, which get a fair proportion of four-year volunteers, no particular attention is paid to the

previous associations or wishes of the men themselves. These four-year volunteers are men who volunteer to serve for four years with the colours, on condition of being excused Service in the Reserve ; they are only allowed in the Cavalry, and have, I believe, the option of choosing their own regiments. With these exceptions, the mass of recruits are by no means promising material to convert into horsemen, for in spite of compulsory education, general intelligence and quickness are by no means the prevailing impression derived from their features ; nor are the long bodies, short legs, and round thighs which procured them exemption from Infantry duties, particularly adapted to give them a firm seat and light hands on horseback ; nor does the high and clumsy-looking Hungarian saddle, raising the man six inches unnecessarily above his horse's back, render the matter any easier. In addition to all this, it must be remembered that the squadron officer has neither riding-master nor adjutant to help

him to drill his recruits or train his horses ; he has to do all that work himself, and the time at his disposal in which to perform the first part of his task (*viz.*, recruit-training) is barely six months, in two or even three of which (especially in the Eastern districts), the weather is too bad to permit of any outdoor work whatever. But as a set-off to these disadvantages, the quality of the horses and the wise arrangements with regard to the supply of remounts must be taken into account. The horses for medium and light regiments are supplied almost entirely from Government studs, and are the produce of stallions bought by Government, whose services are available for any farmers in the country keeping suitable brood mares. As is well known, large quantities of Arab stallions have been imported ; and these, with East Prussian mares, have produced a capital stock of small well-bred and hardy horses, particularly docile and temperate. The Hungarian horses tried in England a few years

ago, though they were by no means the best of their class, still gave most favourable results as regards endurance in South Africa and Egypt; but I was told by an Englishman formerly in the Ziethen Hussars, and quartered on the Hungarian frontier, that the best Hungarians were not equal in endurance to the East Prussians, on which his own regiment were mounted. The patient and sensible method pursued in training these horses as remounts is really the foundation of the whole structure; the course of preparation lasts two years, during the whole of which they are only ridden by picked men, and not till the end of the second year are they required to work in their full kits, and then are still spared and saved as much as possible, particularly in the manœuvres. It has been found by experience that any attempt to get more work out of them before their growth has been fully completed, only leads to their rapid destruction; whereas horses that are well on in their sixth year before put to hard

work, will last for years ; and I have seen many a horse of 19 and even 20 years of age still doing his full share of duty. Besides this, the two years of steady training have so formed the animal's paces and taught him his work, that even the clumsiest recruit can hardly make him unsteady, and the result is seen in the extraordinary precision in which the squadrons work when at drill. I have seen squadron after squadron go past at a trot without a single horse in the ranks breaking, and the trot is a real eight-miles-an-hour one, and not the shambling crawl one too often hears dignified by that name. The horses look small, and hardly up to the weight they have to carry. Taking the average of the hussar and dragoon regiments I have seen, they are certainly smaller than the run of native cavalry, but their endurance is incontestable. The whole of the time they are on the drill ground, they are almost incessantly at the trot or gallop. The only time I can remember

having seen them at a walk (except, of course, in a march past) is when they break-up after a charge to represent the *mêlée*. Take for instance, the ordinary demands made on every squadron at the inspections in May ; and in the brigade and divisional manœuvres they are still higher. " Every squadron must be prepared to cover 2,000 yards at a trot, 600 at a gallop, and 120 about at the charge ; then break-up into the *mêlée*, and on the trumpet sound, ' Appelle ! ' rally to the front at a gallop, and charge again in pursuit without remembering or telling-off." And this has all to be done in marching order. The pace of the charge is, as a rule, good in the manœuvres over heavy ground, &c. It may at times appear to us to be slow ; but on the drill-ground at Darmstadt, the other day, there certainly was no fault to be found with it on that score ; in fact, it was difficult to believe that such pace could be got out of such little horses. The chief action of cavalry

in the future will undoubtedly be charging the enemy's Cavalry ; without for one moment admitting that its day on the battlefield against infantry has passed, still, in all probability the Cavalry combats, which must necessarily precede every general action, will afford every regiment at least six times as many opportunities for attacking as the battle itself. In these combats, precision of manœuvres and a boot-to-boot charge will be the chief factors of success, and in both of these the Germans stand far above us. To gain the flank of the enemy is always the leading idea, and for this purpose all such manœuvres as breaking into columns (or half-columns), riding across the front of the enemy, then re-wheeling into line, executing a partial change of front, and delivering the charge, are constantly practised ; and it is perfectly astonishing to see the sections wheel up into line again after a gallop of 200 or 300 yards, without leaving day-light between the files, and yet without overcrowding. I saw

squadron after squadron do this the other day again and again, with a precision I had not believed to be possible. Besides riding boot to boot in the charge, the ranks should be kept separate and distinct, no rushing forward of horses in the rear rank into the front one, and in both respects the charges left nothing to be desired. I have heard it too often said by English Cavalry officers, that it is impossible to ride boot to boot without overcrowding. I do not know why it should be impossible to us, for it certainly is not so to the Germans ; but I will admit that our antediluvian system of giving a base in line movements, and not teaching our men to keep their dressing by riding the time without turning their heads to the directing flank, renders it very difficult to prevent it. But, if so, why not abolish these antiquated ideas and try new ones ? We are not too proud to copy Prussian helmets, shoulder-straps, &c. ; why not, then, copy something useful for a change ? One other point is particularly

worthy of notice, and that is the practice of invariably charging at a moving object, and of never delivering a charge in the direction of the line of advance, but in a more or less oblique line to it, for this will generally be the case in action. We are not likely ever to meet cavalry again who will halt conveniently for us to attack them (though I have seen it done some few years ago in the Long Valley), and it is one of the things requiring most practice and experience on the part of the squadron leader to wait for the completion of the wheel quietly before sounding the charge, instead of, as is too often the case, sounding before half the troops have got into the new alignment, the result being a straggling, loose-jointed attack, more like a flight of wild ducks across the sky than the living wall it should be.

LESSONS FROM THE AUSTRIAN CAVALRY.

SIGNS are not wanting that the Austrian Cavalry are beginning to shake off the lethargy into which the events of 1866—disastrous indeed for the army as a whole, but assuredly not for the Cavalry alone—threw them ; and that in the next war we shall see them ready again to assert their position on the battle-field, we trust, with the same and even greater success than that which attended them in 1849, 1859, and 1866. It is difficult to understand how it happened that their confidence was so thoroughly shaken by the experience of the latter campaign ; for, actually, they but seldom came under the action of breech-loading fire, and then generally under conditions which would have entailed their failure against any of the other arms that have been in use since the invention of gunpowder. Cavalry

charging brave unshaken Infantry, favoured by the ground, or sacrificing themselves to cover the retreat of a broken army, have generally been severely handled. There was nothing in the fact that history here repeated itself to justify them in almost entirely resigning their position on the battle-field. All that was necessary was to devote such care to the preparation of their leaders, that they would be no longer exposed to certain destruction, from the choice, by the latter, of wrong opportunities; and to train the army as a whole, so that the task of the cavalry on the next battle-field might be to pursue the retreat of the enemy, not to cover that of their own. The task set before them at Konigratz was one certain to lead to their destruction. Their own army being already in full retreat, they were called on to attack the victorious Prussian Infantry and Artillery who crowned the ridges up which they had to ride. Across nearly 2,000 yards of open, uniformly sloping ground, sodden

by the continuous rain of 24 hours, these gallant horsemen rode forward, and succeeded in penetrating at places amongst the Prussian Infantry and Artillery, both of whom were morally in the best possible position for receiving them, for both were "on the win" and the six hours' previous fighting had weeded the ranks of the former of every man who did not "want" to be in at the death. The woods and copses down towards the Bistritz and northwards of Chlum had acted as filters. The excitement and novelty of the first fire had worn off, and the men were as cool as veterans, and their fire proportionately deadly. But still the Austrians came dangerously close to them, and would have come closer, had not every formed body of Prussian Cavalry within reach ridden up spontaneously and attacked. The fight then degenerated into a gigantic cavalry duel which gave time for the Austrians to withdraw almost unmolested. Surely, here we find no cause to justify the discredit into which Cav-

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alry has fallen, but rather the contrary. Reverse the slope of the hill and fire, and give the Austrians five minutes' start, then the Prussian Cavalry would have been too late ; and it seems probable from what actually was accomplished that the first lines of Prussian Infantry would have been very seriously dealt with indeed.

Had the Austrians only turned to the other theatre of the war, they would have found ample cause to alter their opinions. There, against the muzzle-loading rifle, their services were most brilliant, but because it was against the muzzle-loader, no further notice was taken of it. We, wish to ask, once for all, of what possible consequence it can be to either horse or rider whether the bullet that stops him came from a breach or a muzzle-loader ? The weight, striking velocity, and number of bullets that have to be encountered in any given interval of time, are the factors that signify, except in so far as increased rapidity of firing diminishes accuracy : the

question of the weapon itself is immaterial. As we have frequently pointed out, the greater density in which troops stood to receive cavalry in those days more than compensated for the increased rapidity of fire even of the modern rifle. Let us apply this reasoning to the following incident, *viz.*, the charge of Edelsheim's brigade at Custozza, which deserves to rank with the finest exploits of the arm in any age. At 7 A.M., an Austrian Division, some 2,000 sabres, attacked two divisions of Italian Infantry, about 20,000 strong, and drawn up in two lines of battalion squares, covering each others' intervals. They broke several of these squares, and carried confusion right to the rear of the army, and then came back again between the remaining squares, receiving, of course, their fire again as they went back. But in spite of their losses they were not at all broken, but quickly rallied and re-formed out of range, watching the Italians, whom they held firmly rooted to the ground, for it was

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felt that, the moment they moved, the terrible Cavalry would be on them again ; and hence the services of the two divisions, though urgently required at another and decisive portion of the field, were lost to the Italians for the whole day. At five in the evening the Cavalry attacked again, and fairly swept the field of the enemy, capturing more than double their numbers of prisoners and many guns. The Cavalry losses during the day did not exceed 30 per cent.,—not an excessive price to pay for victory. Even allowing the breech-loader to be equal to five muzzle-loaders, which is a great deal more than it actually is, still the Cavalry would have neutralised, and eventually have annihilated, nearly double their numbers, at a cost of some 600 men and horses. How many Infantry would be required to effect the same, and what would their losses be ?

It is not likely that the troops the Austrians will have to meet in the coming campaign will be superior in discipline or

courage to the Italians and, besides, they will have to be encountered in extended orders, not in close,—a formation least of all adapted to their gregarious instincts. Nor is it probable that they possess the requisite moral development to utilize to the full the power of the breech-loader—a fact of which they seem to be fully aware themselves, and which, to our mind, stands out most distinctly from the accounts of the last Russo-Turkish War. And hence we draw from the order recently issued, about charging unshaken Infantry, the most hopeful augury for the success of the Austrians in the coming campaign ; which, even if postponed this year, must come sooner or later. The weakest point in the present Austrian Army we consider to lie in the “Tactics of Timidity,” in which for the last 20 years they have been trained, and which resemble only too closely our own. Both contrasts most unfavourably with the resolute, offensive spirit inculcated in the Russian Infantry by

Skobelev, and, since the war, by Dragomirov, to meet which either their Infantry tactics (and our own too) must be diametrically altered, or the Cavalry must be called on for sacrifices beyond anything we are accustomed to think of,—a call to which we feel certain the horsemen of both nations will most loyally respond, for, after all, what better right has a foot-soldier to die for his Emperor or Queen than another. As to their probable success or failure, it appears to depend on the following simple consideration: the bulk of the infantry fire in action is inevitably unaimed, hence the chances of being hit, depend on the length of time during which one is exposed, and the size of the target. The Cavalry target is one-third larger, but, on the other hand, moves over, say, 1,500 yards in one-sixth of the time. Its losses during the charge will, therefore, probably be roughly one quarter of those of an equal body of Infantry. It will not, therefore, be liable to serious loss

till after the actual shock ; and the amount of these losses can only be modified by the prompt advances of Infantry, above all of Artillery, to support it at case shot ranges. Loud then will be the cries for Horse Artillery, and bitterly will its absence be regretted by those whose misfortune it may happen to be to pay with their blood and reputation for the short-sighted economy of their rulers. The economy in horses to feed after such an engagement will probably be amply sufficient to satisfy even the mind of the anonymous "General who has commanded an Army in the Field."

CAVALRY IN WAR.

THE publication of the statistics of losses in the German Army in 1870, by the Red Cross Society explodes one of the many fallacies on which English tactical ideas have been of late years based, *viz.*, that the sword and lance counted for nothing in the Franco-German War. The origin of this fallacy appears to have been a statement by DR. ENGEL, a German Medical Statistician, that, after Sedan, out of 72,000 German horsemen in France, only six met their death from the *arme blanche*, a statement probably true enough ; for *after Sedan* the Germans never again encountered formed cavalry in the charge. But unfortunately our would-be reformers omitted to notice the words "*after Sedan*," and persuaded themselves that the absolute total loss suffered by the German Army, not Cavalry only, but by the whole German Army, from the above-mentioned

weapons, only amounted to the ridiculous total of six men placed *hors de combat*. It seems absurd that such a ridiculous statement could have received credit for one single moment ; yet we can vouch for it, that it was actually believed by a large number of Infantry officers, and has also appeared in many military papers. Only a few months ago, DR. W. H. RUSSELL considered it worth his while to state, in contradiction of it, in the columns of the *Army and Navy Gazette*, that with his own eyes he had seen more than treble the number of German corpses, carrying unmistakable marks of lance and sword lying on the plateau of "Floing," on which the celebrated charges of GALLIFET brigades of the French Cavalry took place the morning after Sedan.

But we have it now, on good authority, that the Germans alone lost during the course of the war no less than 1,163 men killed and wounded by lance and sword, though they were successful in every single charge against French Cavalry, and the

latter only succeeded in breaking off the angle of a small company square, formed by some pioneers in front of Morsbrunn on the 6th August at Woerth, and in riding down a few skirmishers at Vionville, Beaumont, and Sedan. What the French losses from the same weapons were, we are unable to say ; for up to date the latter have given us no statistics, but we can arrive at an approximation to them from the following facts.

Whenever the German and French Cavalries crossed swords, the former were victorious, and therefore, presumably, disabled more of their opponents. The attack of FORTON's Division on the *débris* of BREDOW's Brigade, after the latter were blown and disorganised by their successful charge on infantry and guns, may be fairly set against the losses inflicted under similar circumstances by Prussian Hussars on the *debris* of MICHEL's Brigade at Woerth. Then as a clear gain to the Germans we can register the losses they

inflicted on French Infantry and Artillery at Vionville, where besides the well-known charge of BREDOW's brigade, referred to above, the 11th Hussars captured a battery of guns, nearly secured BAZAINE himself, and cut up some parties of Infantry ; and the 1st Garde Dragoner rode into and destroyed the French Infantry who, in the full flush of victory, were driving before them the remains of WEDELL's Infantry brigade. Nor should we leave out of consideration the number of fugitives ridden down after Woerth, or the gangs of Mobiles dispersed and annihilated in the latter portion of the war.

And it must not be forgotten that, at the commencement of the war, the German Cavalry knew nothing practically, of the employment of Cavalry *en masse*. There was not a single Cavalry officer in the army who had ever manœuvred a Division together, and the Divisional commands were only formed on the 29th July for the first time. Their old traditions had

been entirely lost. For years past they had been taught to believe the accepted axiom of the Umpire Staff that "Cavalry cannot charge unshaken Infantry." Even BREDOW is said to have returned that answer to the officer who first took him the summons to attack and extricate the Infantry, and finally, they all wore blunt swords in steel scabbards. The latter may appear only a trivial detail, but it is far from being so. SIR CHARLES NAPIER said of the steel scabbard in Scinde : "It is noisy, which is bad ; it is heavy, which is worse ; and it blunts the swords, which is worst of all." Our own experience in the Sikh war should have impressed this on our memory. Let us only quote one example out of many. At Chillianwalla UNETT's squadron of the 3rd Light Dragoons (now the 3rd Hussars), 70 strong, charged more than double their number of Sikh horsemen, the latter being wretchedly mounted, *but* armed with cast light dragoon swords, sharpened to a razor edge, and carried either without scabbards at

all, or in wooden ones. Though our horsemen drove their enemy from the field, 45 out of the 70 were killed or wounded, and most of the wounded died before help reached them, and it may also be well to call to mind that after the Sikh wars, chain bridles, steel gauntlets, and a curbchain sewn into the lining of the sleeve, were recommended to be worn in the Indian Cavalry ; of all of which recommendations, only the steel chain worn by Infantry Field officers, and usually supposed to be a picketting chain, though really a chain bridle, remains in the service. Taking it all in all, we can hardly believe the losses inflicted on the French Army by the German Cavalry, at less than five times those suffered by the latter, and had the swords been sharp, and every blow struck home had carried death with it, as it should have done, we should be inclined to multiply the last figure again by three, which would give us the respectable total of about 15,000 ; and as the total loss of the French is not generally supposed to have exceeded

the total loss of the Germans, on the battle-field, it would appear that the cavalry of the latter actually inflicted, or ought to have inflicted—given sharp swords—a heavier loss on the French, than the French Artillery actually inflicted on the Germans, or 15 per cent., against about 9 per cent.

But in the next war all this should be still farther improved in favour of the Cavalry. Steel scabbards, it is true, still remain, but the German Cavalry officer is fully alive to the advantage of a sharp blade, and may be trusted to do his utmost to secure it. Their leaders too have been accustomed to handle large bodies of men, and both men and officers have been thoroughly indoctrinated with the old principles of ZIETHEN and SIEDLITZ. Their regulations, too, no longer leave them in any doubt as to unshaken Infantry. “Cavalry must on occasion be prepared to charge even unshaken Infantry for,” to quote PRINCE HOHENLOHE, “who can tell whether the Infantry are shaken or not, till

the attempt has been actually made." And no umpire now would dare to repeat the old and hated formula, "Cavalry cannot charge, etc.," without carefully weighing the conditions under which the charge was supposed to be delivered. Leaving the Russian Mounted Infantry out of consideration for the moment, the first act of every campaign must open with a series of gigantic Cavalry charges, in which the Germans, at any rate, will be prepared to handle bodies of 60 squadrons at a time ; and if they learn to keep the edges of their swords keen, the losses of the last war may, judging by our own experience of the Sikhs, be safely multiplied by ten. Imagine the terribly depressing effect the rumour of such slaughter would spread in the ranks of the defeated enemy ; we doubt whether its Infantry then, however intact materially, could be considered morally unshaken when face to face with a charging division. Even repeaters will make little difference ; for as long as men possess human hearts,

nerves, and minds, opportunities will certainly be given to a well-trained Cavalry leader ; and we have ourselves seen German Infantry armed with repeaters, fairly ridden into, on the manœuvre ground, without their having time to fire more than a single round.

Experiments in France, Sweden and Russia have all shewn that the increased rapidity of fire of the repeater does not necessarily imply an increased number of hits, and common sense alone is enough to demonstrate that the reduction of calibre now so popular in Europe, will not give greater deadliness. We would recommend to a few of the small-bore enthusiasts a course of practical experiment on foot in the jungle against charging tigers, and then let them apply the result of their experience, if they survive, to the case of a galloping horse maddened by the excitement of the charge.

CAVALRY *VERSUS* INFANTRY.

WE make no apologies for returning to this subject. The indignation some of our previous articles appear to have excited in the martial bosoms of numerous Infantry officers, in itself, would be excuse enough for our doing so ; but the important bearing of this question on the tactics of future wars and the necessity which exists that the two arms, when occasion requires it, should play into each other's hands, is our principal justification for pursuing it.

The main point of our contention does not appear to have been grasped by our Infantry critics, and, moreover, we have been held personally responsible for what is really the statement of two such highly responsible and qualified authorities as the Austrian and German General Staff. It is they, not the *Civil and Military Gazette*, which first asserted it as a principle of modern battle tactics, that "Cavalry must

on occasion, be prepared to charge even *unshaken* Infantry." We acknowledge the implied compliment gratefully ; whilst, at the same time, we disclaim the responsibility of the authorship of the paragraph which called for it. Let us proceed to throw a little light on the matter. Both Germans and Austrians only wrote for their own Cavalry against any Infantry they were respectively likely to meet. Similarly we, in enlarging upon their text, only wrote for our Cavalry against any Infantry we are likely to meet. It is less than probable that under any circumstances British Infantry will be called upon to face either Austrian or German Cavalry, and it is absolutely impossible that they will ever have to face the shock of our own squadrons. Hence our remarks implied no disparagement of our own Infantry. Further, whenever the topic of Infantry *versus* Cavalry is broached, the Infantryman always imagines Cavalry charging down on squares equal in steadiness to those of the old

Peninsula Army, and perfectly justly reasons that with such men and modern arms Cavalry would have no chance at all. But, in the first case, squares will probably never be seen on a modern battlefield again; and, secondly, Infantry of such quality as those of the old Peninsula Army, are certainly not to be found in the ranks of any of our possible enemies. It would be well for us to realise more distinctly what manner of men these were who fought for us and won from even the most virulent of our enemies, *viz.*, NAPOLEON himself, the admission that "the British Infantry was the finest in the world, and it was fortunate there were so few of them." It is true that, morally, they were of a very low class, and even physically hardly up to the standard of to-day, but they were under an iron discipline; and discipline did what Hythe and the Musketry Book have hitherto failed to do, *viz.*, it enabled them to destroy with a couple of volleys, the finest Infantry the Continent of Europe could show.

Such Infantry, even with their old armament could probably stop any Cavalry in the world ; but where now-a-days are we to look for their equals in the conscript armies of the continent ; certainly not in the ranks of France and Russia, the only continental forces with which we are ever likely to cross bayonets. The truth is the conditions under which the two arms met have varied enormously : the whole features of the struggle have changed. The shock of Cavalry used formerly to be delivered against Infantry drawn up in close order under thorough discipline, and with the very strong reason of self-preservation to induce them to husband, not to squander, their ammunition, for once their fire was drawn, they were practically defenceless. It is true that now-a-days the individual man possesses the power of firing off an indefinitely larger number of rounds than his predecessor ; but his moral development has not kept pace with the development of his weapon. The increas-

ed deadliness of the breech-loader, with the necessity it entails of adopting looser formations, and the excitement produced by the mere noise of the heavier firing, has withdrawn troops from the hands of their leaders to a degree which would have appeared impossible to our forefathers. Can we imagine the DUKE OF WELLINGTON's expression if he were asked to believe that Infantry once engaged within effective range of the breech-loader passed so absolutely out of the control of their commanders, that it is impossible to move them either to the right or left, and frequently even impossible to make them advance at all except by the impetus of fresh reserves from the rear. Yet these are the fundamental ideas on which the general principles for the German decisive attack, by far the most thrusting in Europe, are based. Is it possible to conceive the picture this conveys without seeing opportunities to be seized by a bold and resolute Cavalry leader?

But to turn to the Cavalry and take

their side of the question, though to do so we have to go back to Ancient History. During the Seven Years' War, given open ground practicable at all for manœuvring, and Cavalry became the arbiter of the battlefield. At Rossbach 5,000 horsemen, led by SEIDLITZ, and aided only by a few rounds from some field-guns, broke and routed the whole French Army over 100,000 strong. At Hohenfriedberg the Baireuth Dragoons, six squadrons in all, broke 69 battalions of infantry, capturing all their colours : and we might fill several columns with similar examples. And the Infantry they broke were by no means contemptible ; as far as armament was concerned, they were as well equipped as the Russians in the Crimea, and in point of discipline, probably far superior. What then led to the comparative failure of Cavalry during the Napoleonic era, for except our own, none came really well out of that ordeal. The failure of the French is easily accounted for. The Revolution not

only destroyed their horse-supply—never a good one—but it also cut off all the heads of the leaders, and it took years to supply their places ; and when at length men like EXCELMANS, DESAIX, MILHAUD, began to come to the front, the supply of men and horses both failed them. This is no exaggeration, for official returns prove that the bulk of LATOUR MAUBURG's celebrated dragoons were mounted on 14-hand tats, and letters of English eye-witnesses assert that the cuirrasiers were for the most part mounted on second-rate diligence screws and light cart-horses. As for riding it could hardly have been worse. What can we think of Cavalry which could not be trusted to charge at a better pace than a trot. Yet such was absolutely the case : the testimony of NAPOLEON himself and JOMINI proves it. That even with such Cavalry brilliant results were obtained cannot be denied, but it was not till NAPOLEON had practically destroyed all the good Infantry in Europe, and their place

had to be supplied with raw levies suffering under the impression of previous defeat. As regards the decay of the Prussian Cavalry the impoverishment of the country, after the Seven Years' War, appears to have been in a large measure to blame for this; and the fatal mistake of splitting up their Cavalry into small bodies of Divisional Cavalry had also much to say to it. Nevertheless, their conduct at Jena and Auerstadt was far from inglorious, and it must be remembered that the Infantry they encountered was then at the very height of its prestige. Yet it fared no better than others before our own horsemen. Salamanca, Vittoria, Waterloo, all prove it. Where could steadier Infantry have been found than NAPOLEON'S Old Guard at Waterloo, yet they went down before the rush of VIVIAN'S and VANDELEUR'S squadrons like standing corn before a hurricane.

After the peace, a night of great darkness settled down over the Cavalry; in Prussia they were discredited, and in France

they went to sleep over their laurels, content to believe that they had done all that could be expected of them, and that the sole cause of their defeat had been treachery. Only in Austria did they still keep up their reputation ; but, though many an Englishman served in their ranks, only one came back to shew us the way to victory, and that was NOLAN, who fell at Balaclava, and whose book, now rarely to be met with, should be in every Cavalry mess in the service. Of our own performances in India, we at Home appear to have thought but little, yet no arm of the Service did more for us on the battlefield ; and though our enemies' faces were black, yet we doubt whether Cavalry ever had a tougher nut to crack than the squares of the old Khalsa Army. Certainly no modern conscript army would oppose such a desperate resistance to horsemen, inside the square, as these brave Sikhs did with their side arms.

Meanwhile, the armament of Infantry had been making rapid progress, and with

each fresh invention it was prophesied that the days of Cavalry on the battlefield were at an end. Rifled arms shot three times as far, and five times as accurately as old Brown Bess. Hence, if good Infantry with the old arms could stop Cavalry, what could hope to live against them with the new. Cavalry officers in vain pointed out that, though the rifle might shoot more accurately if held straight, it would not do a bit better than the smooth-bore, and indeed not as well if held crooked; that though it was true it shot further, yet it had the disadvantage of sights which had to be regulated: the invention theories triumphed on the parade ground, but broke to pieces on the battlefield. The Austrian Infantry, though of long service, and celebrated for their steady fire with the smooth-bore, went all to pieces in 1859, when their rifles were first put in their hands. Even the French Infantry were able to attack and beat them with the bayonet, without waiting for their own Cavalry, which, by

the way, was badly-handled throughout, 1866 was also a bad year for the Cavalry, though not as bad as is usually imagined : the truth being that the Austrians were usually obliged to attack under conditions which rendered success impossible; yet even then they frequently came within an ace of obtaining glorious results, but the storm of opinion had fairly set in against them, and by 1870 it blew a perfect hurricane.

On every field day, in every paper, the Cavalry were told that their sun had set for ever, and what wonder, under the circumstances, that they came to believe it. But again the battlefield upset all the theories. BREDOW's brigade and the 1st Garde Dragoners shewed clearly what Cavalry could do even under the most unfavourable circumstances and against unshaken Infantry. The French Cavalry, too, were by no means as unsuccessful as is generally supposed : where the ground gave them a chance, the Prussian Infantry ran a very close risk of what must have

been a crushing disaster. It took years of labour though, on the part of such men as PRINCE FREDERIC CHARLES, GENERALS KAEHLER and V. SCHMIDT to get a fair hearing, but they at last succeeded, and their work lives after them. Space does not permit of our going closely into the controversy which raged in the German Military Press, but one by one the opponents were won over to admit that Cavalry trained and handled on the lines laid down by FREDERIC THE GREAT would still, in spite of breech-loaders and repeaters, find ample opportunity of reaping as brilliant a harvest as their forefathers. The great fact has been borne in upon them, that human nerves are not susceptible of as rapid improvement as fire-arms require for their successful employment. And that the very intensity of the struggle creates moments of crisis in which all control over the men is impossible, and the bravest Infantry, if attacked at the right moment, must be ridden over like a flock of sheep. It lies with the Cavalry to seize the

moment, and this their increased mobility enables them to do.

Cavalry is the one arm of the service in which we have both the men and material to achieve a complete superiority over any other nation in the world. It is the one arm in which individual superiority of man, horse, and leader can counterbalance mere numbers, and therefore it is of the utmost importance to us to develop its capacity to the highest degree. And obviously, allowing umpires to put them out of action invariably, wherever they shew themselves even for a few moments, is not the way to encourage that spirit of keen daring which is essential to their success.

Six hundred horsemen astonished Europe by breaking somewhere about half of the Russian Army, Horse, Foot and Artillery, and driving them in rout over the Tchernaya. But no umpires had ever taught them to retire. Perhaps the opportunity for a similar rush may come sooner than we expect. Let us hope we may be ready.

A DAY WITH THE GERMAN CAVALRY.

AS the cold weather is approaching, bringing with it the usual course of squadron trainings, route marching and Cavalry manœuvres, the following account of a visit to a German Cavalry Regiment may prove of interest :—

On my way back from India last hot weather, I stopped at D ——— to pay a visit to an old friend, an Englishman by birth, and an officer in the Prussian Cavalry. He had only recently been promoted to the rank of Captain or “ Rittmeister,” as the Captains in the Cavalry are called, and had been transferred on promotion from a north country regiment to the one in which I now found him, *viz.*, the red “Garde Dragoner” (Hessians) which was hardly up to the standard of the old Prussian Hussar regiment, “Ziethen,” from which he came, but still it was a fair type

on which to found an opinion as to the average efficiency of the whole of the 72,000 horsemen the Germans can put in the field.

The evening of my arrival we inspected the stables, which formed the ground floor of the men's quarters, each squadron standing in a block by itself: they were long, fairly lofty buildings, well ventilated, but hardly sufficiently lighted. Each horse stood in a stall by itself, which is unusual, for, as a rule, they are separated merely by bails, as in our own stables. The horses had just been bedded down, and the bedding was clean and sufficient: much of this, I fancy, was due to my friend's English notions. I have generally seen Prussian Cavalry standing in heaps of what we should call manure, but the Germans call *mattrases*, the bedding being put down *en masse* about once a quarter, and only freshened up now and then by a few handfuls of straw to keep the upper surface clean. They say, it keeps the stables warmer, and so it does ;

but the amount of free ammonia present in the air of one of these stables makes one's eyes stream. In this case there was, however, no fault to find, nor with the way in which the harness was hung up and cleaned, and the steel work was not so absolutely ignorant of the burnisher, as I have sometimes seen.

Next morning, mounted on one of my host's chargers, a very good-looking East Prussian stud-bred, about 15-3 in height, and whose paces and training were both exceptionally good, I rode out about 6-30 with the squadron to the drill ground, distant about four miles. The first mile lay through the suburbs, but once outside them we got on a capital riding path through some rolling woodland, and immediately broke into a trot. In Prussia they waste no time, and this daily march was thoroughly utilised to accustom the men and horses in maintaining a perfectly regular pace of eight miles an hour approximately, as they say this is a thing on which the efficiency of

large bodies mainly depends, both on the road and in the field, and can only be acquired by practice. An English squadron would have trotted up one hill and walked down the next, but they kept up the same unvarying pace, because when in a long column of two or three regiments, it is impossible to allow each squadron to choose its own pace, or even for the leading one to do so, as the alteration would run through the whole from beginning to end and cause a lengthening of the column, which might amount to three times its normal length, in which case its deployment would also take three times as long ; and even within the limits of the squadron the value of this practice was most noticeable, for I have seldom seen one on the march with its distances more perfectly kept, and in marked contrast to what one usually sees at home. Presently we came to the end of the woodland and in sight of the parade ground, and the walk was sounded : the leader looked at his watch

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and assured himself that their time had been accurately kept, and we walked quietly down to the drill field. The other regiment in garrison was already there, and its squadrons moving about independently. There is something very inspiring and lively in watching German Cavalry at a distance ; the movements are so rapid, the order so perfectly kept, and the whole goes with so much swing that one's interest never flags. I wish I could say the same of our own, but my memory goes back to a certain heavy Cavalry Regiment we used to watch from the windows of our mess hut at the Curragh, which used to crawl slowly round the finest Cavalry drill ground in Europe, rarely went out of a walk, and which, during six months nearly, was never seen to charge. And other visions, too, rise up before me of another medium regiment at Aldershot, which could never keep up with the two light Cavalry Corps with which it was brigaded, and which was captured and put out of action regularly

every field day—and sometimes in the first half-hour. Why, it was such a certain thing that lady spectators used always to ask to be taken “to see the—(I won’t mention it by name) regiment captured.”

But to return to the Germans. We had the band with us this morning—it goes out in turn one day a week, with each squadron—so we commenced with a march-past to one of the finest Cavalry trumpet marches ever written. “Die Torgauer.” The walk-past was excellent, the steadiness of the horses and the position of their heads all showed their careful training ; but the trot-past was better still, the steady swinging pace, total absence of all jostling and breaking, and the way the distance between the ranks was kept being all that man could desire. I could not help expressing my admiration to my friend, who said: “Ah ! it’s the horses that do it: wait till you see the riders.” He then broke up the squadron into divisions, separating out first the second year remounts and

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then the recruits ; the remainder then rode off independently to practise in different parts of the field. One went off to a little fir copse where it dismounted and proceeded to skirmish : another took one side of the ground where elementary heads and posts were arranged ; a third took another side, along which distances were marked off, and proceeded to regulate their paces by the watch ; and the fourth broke up altogether, and each rider rode his horse about individually, in and out just where he pleased.

We first directed our attention to the backward recruits, about 20 in number. There should have been no recruits properly speaking, as the squadron inspections were over, and all the men should have been in the ranks. These men, or rather boys, were not mounted on the oldest horses in the squadron, but on ones still in their full prime, for according to their ideas nothing is more hopeless than to attempt to train a horseman on an old horse,

who has lost all the life out of his pace, and knows the drill so well that he cannot go wrong. The men were a most disappointing lot—long-bodied, short-legged, round-thighed: they would have broken the heart of any riding-master; as for the high intellectual culture conferred by compulsory education on all alike in Germany, and which, according to some people, had more to do with the winning of Sadowa and Sedan than the superior leading, there was not a trace of it—a stupider-looking lot it would be hard to find anywhere. Of course these were not the shining lights of the regiment. They were distinctly below the average, but even in the average one looks in vain for any indication of special intellectual gifts superior to what we meet with in our own soldiers. I have seen many hundred recruits of all arms in Germany, and a considerable number of our own, and I say it without hesitation that the average of our Cavalry is far superior, both in intellect and physique (under

the latter head it is impossible to compare the two), and that in all the other arms we more than hold our own. That we do not know how to develop and make the most of the excellent material we get I fully admit ; but we have got it, and we deserve nothing but shame and disgrace for not understanding how to make the best of it. But it must not be overlooked in judging the individual Prussian horseman that the saddle in use with them gives him an ugly seat, quite opposed to any of our own ideas. Excepting in the Cuirassiers, the saddle is everywhere the Hungarian, too well-known to need description. In itself it is an excellent saddle, but it is raised unnecessarily high above the horse's back, and hence gives the rider a top heavy appearance, and the central web on which the shape of the seat depends is too much laced down in front to the fenders, thus throwing the rider forward on his fork : but it has one great advantage from the recruit's point of view, and that is, it is almost

impossible to fall out of it. Though the riding in this squad was bad, yet I was struck by the excellence of the system of instruction ; it was individual instead of collective, and there was none of that monotonous repetition of the same words in the same order — the curse of our own schools.

From the recruits we went to the remounts, a nice-looking lot, about 20 in number, and looking like well-bred country-breds with a dash of English blood in them. But for Dragoons they appeared very small—certainly some were barely 14-1. Taking the regiment as a whole, it was not so well mounted as the more northern regiments, and would not compare favourably with a good regiment of Bengal Cavalry. But they possess one great advantage, and that is, the horses are incomparably more docile, temperate and plucky ; there is none of that kicking, fighting and squeaking and general untrustworthiness about them which makes an average

country-bred about the most disagreeable mount in creation. If Prussian riders were put on country-bred horses to-morrow, there would be considerable work for the coroner by the evening. And fortunate, indeed, it is for the Germans that they have such excellent material, for the difficulties they have to contend with in breaking and training them, owing to the want of suitable riders, is enormous. A German regiment has no rough-riders and no riding-master. Everything has to be done within the squadron itself, and, excepting a very few re-engaged non-commissioned officers, entirely by young soldiers of, at the outside, three years' service, or, say, 23 years of age. Now at that age not one man in a hundred, even if he possesses the peculiar talent for dealing with horses, has experience or temper enough to be successful with them. It is a gift which really only comes to those who combine both the talent and the experience, and it is hopeless to look for it in a short service force ; hence a tremendous

degree of responsibility is thrown on the squadron leader and his elder subalterns. They know how much depends on it, for correct breaking in is the secret of successful Cavalry drill ; and hence they strive by every means in their power, by study of books and practice in the field and the school, to fit themselves for it, and hence one finds that the knowledge of equitation, its object, methods, and means possessed by the average German Cavalry officer is of a much higher order than that met with in our own.

Having seen as much of the recruits and remounts as I desired, we then rode on to the division which had dispersed, and in which each man was riding his horse independently—"tummelen" is the German expression for it, and it is an exercise on which the new school of German "Cavalier-isten" lay the greatest stress. But it is only a revival of their old practice under Frederic the Great's generals, when individual horsemanship was a far more general

accomplishment than it is now-a-days. The object of it is to accustom every horse to leave the ranks and every rider to control his horse. Each man does exactly what he likes with his mount, and his officer and instructors look on, and from time to time fall out a man to correct any fault they may have noticed, or to direct him to ride straight on a given point, as if he was carrying a message to a superior officer. The control of the men over their mounts left little to be desired ; they left their squadron readily and galloped straight, and the absence of temper both amongst the riders and horses struck me very much. It is curious how it is that such a violent tempered race as the Germans should always treat their animals with such kindness, but as far back as in the Peninsula, the contrast in this respect between the men of King's German Legion and our own soldiers was notorious.

From here we went on to the posts and heads, or rather to what did duty for them.

The arrangements were very rough : first came a log of wood about as big as a sand bag, raised about 2 ft. 6 in. above the ground ; then a gibbet with a stuffed sack suspended to it ; then another sack on the ground, and finally a straw cone like a bottle casing, on a stick about 4 ft. high, to point at. One by one the men filed by at a trot, canter and extended gallop. The practice was distinctly inferior. I doubt whether two men in the batch would have got two out of three times, and not once in ten times did one hear the edge of the sword lead ; but nearly every man reached the ground with his cut at the canter, though the efforts to do so when extended were feeble. The swords are lighter and far better balanced than our old ones. The grip, too, is flat and tapers off for the smaller fingers towards the pommel ; the hilt is basket-shaped and covers the hand well, but the men, as a body, are decidedly inferior swordsmen, and compare very unfavourably with our own. The

horizontal point (No. 1) is delivered with the back of the hand down, not up, as with us : it is certainly much easier to deliver and has the advantage that the blade can be more readily withdrawn from an opponent's body. The same battle between the edge and point, of course, goes on in their service as in ours, but the supporters of the edge appear to be in the majority. All agree that for a finished swordsman, fighting a duel with ample room to move about, the point has the superiority ; but their men are not finished swordsmen, and in the usual circumstances under which they cross swords, *viz.*, in the charge and subsequent *mêlée*, there is no room to use anything but the edge or the pommel, and it is better that each man should be intent on killing his enemy by violent attack rather than be thinking of protecting himself by guarding—a view in which there is much soundness.

By this time it was about half-past eight, and the squads all dismounted for a few

minutes' rest before being formed up for squadron drill. So far the impression produced had not been markedly favourable, and I was congratulating myself by thinking that, with the exception of the individual riding and leaving the ranks, we could do most things a good deal better than anything I had seen ; but I soon had to change my opinion. For the first few movements in squadron, the senior subaltern took command whilst my host remained with me ; these were all of a simple description, changes from squadron column into line, by front forming or wheeling, but they were executed in perfect order and at a smart swinging pace that left nothing to be desired. After a bit they cantered down in line towards the side where the practice jumps (about the same as our own) were situated, and then breaking into column, still at the canter, took the whole in succession, without the smallest check, like hounds streaming over a stone wall : it was one of the pret-

tiest things I have ever seen. Then after a few minutes' halt, my friend having fallen out a non-commissioned officer with a flag and directed him to ride with me, as a target, fell in himself and took the squadron down to the farthest end of the ground, from whence he purposed to attack me. My pace was to be limited to a trot, but I was free to move in any direction I pleased. The squadron commenced its advance in column at a trot; not to diminish the distance too much I remained halted, till, when about 800 yards distance, the front formed line, when I moved off half left at a trot; but in a moment the centre of the line was on me again and following me round as I moved. When the distance had diminished to about 500 yards, I turned towards them, and almost immediately the leader sounded the gallop, and I halted to watch their approach. They came on like a wall, with no crowding or confusion perceptible; but my time for observation was short, as I had no intention of being

ridden over, so I cleared off to a flank and watched them sweep past at the charge, which again was all one could wish—the horses thoroughly extended the ranks kept distinct, and the cheer and attitude of the men at the moment of supposed shock producing an excellent moral effect. After the contact they broke up into a *mêlée*. The ranks loosened and each man rode his horse round and round through the others at a walk, going through the motions of cutting and guarding: this lasted about a minute; and then the squadron leader separating himself from the men, and trotting half right of the direction, the charge had been delivered in, sounded the “rally,” and in a second the men formed up behind him and, without a moment’s delay, delivered a second charge and broke up in pursuit at full speed, recalling the rush down the ground in a fast polo tournament. Then the walk was sounded, and presently the halt and dismount for a few minutes’ rest.

I expected the captain would by this time have thought his men had had enough for the day, and on asking him if he was going home, I was surprised at his reply : "Oh, no ! We have only just begun ; we will show you lots more yet." He then sent for the non-commissioned officer with the flag and directed him to move off down the ground and manœuvre much as before. I was to ride behind or on the flanks to see things better, and he would lead the squadron by sign and without word of command or trumpet sound except the charge. We had halted near a little fir copse free from undergrowth, and into this he sent the squadron, directing the men to break off. Presently, when the flag had reached the further limit of the ground, he raised his sword, and the men mounted and formed up behind him, telling off in a whisper. Then he moved off at a trot and wheeled them half left and half right by a wave of the sword, which was obeyed as readily as a com-

mand; and then he began the advance against the marked enemy and delivered the attack as before, and in my better position for observation, I could find nothing to alter my previous impression.

The third and last charge was delivered under the supposition that the squadron was the flank one of a regiment advancing in line, and that the outer squadron was to seek to gain the enemy's flank by a wheel outwards into column, wheeling into line, a slight change of direction to bring them obliquely on the enemy, and then a charge home. At about 500 yards from the enemy he sounded the gallop, and then "take ground to the right in column of zugs" (half troops). The line swung into column with admirable precision and changed direction about half left; when the enemy was about 300 yards distant, they wheeled into line without day-light showing between the files, and then, without overcrowding, wheeled inwards yet a little more and delivered their charge

home with a rush and roar that must have swept anything before it. I had never seen anything to equal it, and was compelled to admit in my heart that the opinion I had heard stated by one of our best cavalry officers, who had thoroughly studied the Germans, was correct, and that was that, squadron for squadron or regiment for regiment, we could "not compete with them." Before their perfectly wall-like shock our better riders and bigger horses would have gone down like standing corn before a whirlwind.

An Indian cavalry officer has recently published a work in which he asserts that cavalry cannot deliver a boot-to-boot charge. I wish he had been with me to see it: the truth is we have forgotten how to teach them to do it, but if we are ever to face a European enemy again, we had better relearn the secret, for, as Prince Hohenlohe in his recent "Conversations about Cavalry," points out; the moral effect of this onset "like a wall" is so

irresistible that nothing in loose order can be got to face it, and that this is the real explanation of the fact that, in the old days of Seidlitz cavalry did not often cross swords for the simple reason that nothing could be got to face this "wall-like" rush. It was only when during the Napoleonic era cavalry became mere men on cart-horses, and when the traditions of the old time were forgotten, that charges were delivered in such loose order that an interpenetration of the ranks became possible.

Before riding off the ground the men again dismounted, and we carefully inspected the horses which, as a body, showed no signs of distress in spite of the fast work they had been doing. We got back about 10-30—it was perhaps rather later—having been out four hours and having covered at the least 26 miles in marching order and on a pretty hot day: and this was in the quiet season, and nothing to what was expected of them sometimes in the brigade and divisional cavalry manœu-

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vres. The afternoon was taken up by a farewell banquet to a departing brigadier : it was a most terrible ordeal, and one not to be faced with impunity by a novice, ignorant of the virtue of the magic nut "kola." It began at 2 P.M. punctually, and it was eight in the evening when we broke up. The drink was exclusively "bowle," a species of cup made by mixing champagne and hock in equal quantities, flavoured with crushed wood strawberries and cooled with ice. Certainly, if the proverb *in vino veritas* is to be trusted, the feeling between the German and English armies is of the most friendly nature, and the interest taken in all our exploits very warm indeed. I must say that, apart from after dinner utterances, I have always found a most cordial feeling to exist towards us, and have heard and read far fairer judgments of our doings from German officers than frequently from our own. Everywhere they have been most ready to show me anything which

they were allowed to, and even where permission could not be granted to me, hints enough were given to enable me to pick up what I required, I only trust that whenever any of their representatives may straggle over to this country, they may always be offered as cordial a hospitality as it has invariably been my good fortune to enjoy at their hands.

FREDERIC THE GREAT'S CAVALRY.

WE have already, on several occasions, pointed out the tendency in the German cavalry, and we may add in their infantry too, to go back to the traditions and practices of their great King's time; a review, therefore, of what those traditions and practices were, may prove of interest to military readers, more especially as it brings to light many strong points in our own system of training which seem to be in danger of being forgotten. Our authority for the following lines is Prince Hohenlohe's *Conversations about Cavalry*, a new book not to be confounded with his *Letters about Cavalry*, but which originated from the discussion produced by the publication of the latter. Unfortunately the former has not been, and is not likely to be, translated, as it is of such a strictly technical character that

it would hardly prove remunerative to any publisher, but it is a work which might well be undertaken by the Intelligence Department either here or at home, as a supplement to Von Verdy's book recently brought out: the latter book treating of the employment of cavalry when trained, the former of how to train them for the employment. The book is so important that we feel justified in devoting a few more lines to describe its genesis. The leaders of thought in the German cavalry held that Prince Hohenlohe's views, as expressed in the above-mentioned letters, were decidedly too *couleur de rose*, as in their opinion (and in ours too) their performances in 1870 fell far short of what one has a right to expect from 70,000 horsemen if properly handled. They said, and with considerable truth, that not only was the superior leading, *i.e.*, above the regimental unit, far below what it should be, but the individual training of men and horses left very much

to be desired, and that it was a mistake to let such optimistic views get about, as it had a tendency to slacken the pursuit of perfection. In consequence the Prince held numerous conversations with one of the principal cavalry experts of the day, a Saxon officer of high rank, in which they went into every point connected with the training of men, horses and officers most minutely, and the information thus obtained, he has given us in the form of the book now before us. The first chapter is devoted to discussing the views Prince Hohenlohe advanced about the employment of cavalry in the last war : as these have already appeared in these columns, the Saxon officer's critique on them will not be without interest, so we venture to give the conversation *in extenso* :—

H.—You will at least grant me that whenever the cavalry actually charged they behaved splendidly ?

S.—As far as they knew how to, certainly ; but what could be expected from

the few loosely ridden charges at Vionville which you characterised as "normal:" what would not properly closed attacks have effected !

H.—But permit me to remind you that formerly we were taught that, out of ten charges of cavalry *versus* cavalry, in nine one side or the other turned tail before the shock. Both in 1866 and 1870 this never happened: every time the two cavalries rode into each other and fought it out with the sword. We surely cannot therefore be held inferior to former cavalries in dash.

S.—That is the very point I was aiming at; this riding into each other is the very thing which discloses the weakness of the modern cavalry. I admit that in point of personal courage we are at least as good as formerly, but the reason why in those days cavalry did not inter-penetrate lies in this, that they rode so well closed up that they could not find room to do so, but could only crash together. Frederic

always denounced loose charges, because out of them a *mêlée* arose, and said, "I will have no *mêlées*. Cavalry must charge *en muraille* : before this wall-like attack the weaker side gave way. But the cavalry of to-day are not able to deliver these wall-like attacks, because their horses are insufficiently trained.

H.—But you will at least admit that at Vionville the cavalry was employed in considerable "masses."

S.—Masses, that is to say, numbers, certainly were used, but not in "mass" but in driblets. First one regiment became engaged, and then whatever could be laid hands on, regiment or squadron was brought up and hurled at the enemy without any predetermined plan.

* * * * *

The reason for all this was that we had too few leaders who could trust themselves to handle a large cavalry mass systematically and lead it intact against the enemy.

. . . . It is not the leaders I would blame

for this, but the system which failed to educate them up to the mark.

H.—I hardly understand you ?

S.—Do you fancy that Seidlitz, Ziethen, Driesen, &c., all came into the world as finished cavalry leaders ? They were the product of the conditions under which they lived. Seidlitz was a genius, Driesen was not, but both were able to attain high results with cavalry masses.

H.—But now-a-days we hear and read amongst our “Cavalleriests” nothing but the necessity of following the principles of Frederic.

S.—Theoretically, yes, but not quite in practice ; in his general tactical rules, yes, but in their application not always ; in the demands to be made on them, yes, but in their execution not altogether ; in the object with which these masses should be employed, yes, but in the way how they are to be fitted for this employment nothing at all. Least of all do we read how the individual atoms of which they are

composed are to be fitted for their task—I mean about the individual detail training of man and horse.

H.—But surely a mass of men, even if the units are indifferently trained, can, if handled on Frederic's system, achieve a great deal.

S.—I doubt it.

H.—Well, how about Murat ? His horsemen were certainly individually below mediocrity, and yet—

S.—Murat certainly never led his cavalry according to Frederic's rules. He formed great deep columns and set these masses in motion in a fixed direction ; not one rider in them could have given his horse another direction had he wanted to do so ; and besides he attacked only at a trot : certainly *that* was not in accordance with Frederic's ideas.

H.—That the riders had no power over their horses was certainly the case. My own uncle, who was bringing up a brigade against Murat's great attack at Liebert-

wolkwitz (Leipsic), told me that his own horse on that occasion bolted with him and dashed past Murat's mass at about ten paces distance. The enemy's horsemen cursed and swore at him, but not one had power enough over his mount to approach him, and the whole crowd hurried past in a wild confused "mass" in the direction they had been started in. Hence it seems that even if Murat started them at a trot, they soon, whether intentionally or otherwise, broke into a gallop. Closed in an orderly fashion they certainly were not: my uncle described them as a disorganised "rabble."

S.—And what was the result of this attack with wild run-away horses? They rode down one or two Russian batteries, and then were driven back by the onslaught of a few regiments of the allies, in spite of their numbers Cavalry like this which breaks out of control and literally "bolts," though towards instead of away from the enemy, is of no sort of use.

H.—But surely things are better with us now-a-days ?

S.—Not very much. I could give you examples to prove it : I almost fancy with such troops it is a pure chance in which direction it bolts. Why, I remember a case in which a cavalry division of six regiments was to be relieved by a fresh one of the same strength, but through a misunderstanding the former galloped down *en debandade* on the latter and tore it away in flight with it.

H.—I confess I cannot recall the instance from my stock of military history.

S.—Probably not, for it happened on the manœuvre ground ; but it might just as well have happened in war. Such an accident may at any moment happen to cavalry men who cannot control their horses, however brave they may be. Have I not some grounds for believing it to be a pure matter of chance in which direction it may bolt ?

H.—Certainly ; but is it possible to

train men and horses to such an extent as to prevent such an accident happening ?

S.—Why not ? If Frederic's men could do it, then why not ours ?

H.—Still I do not yet understand why you attribute the deficiencies of our leaders to our method of training.

S.—Our riding education keeps our horses during the whole of the winter on the level ground of the riding school and *manège*, from the 1st October to the 1st April. Then follows the squadron training and regimental drills, also on level parade grounds. Only during the short period of the detachment exercises and manœuvres, which last only four weeks, is it necessary for cavalry to ride straight across whatever comes first. Is it possible that the soldier can feel full confidence that his horse will carry him safely as long as he sits close—doesn't jag at the bit ? Is it to be expected that he can keep his eyes on the enemy and his squadron leader : is it not much more likely that

he will be anxiously looking down at every stone and furrow on the ground, and at the same time keep worrying his horse's mouth and thereby destroying the order of the formation? But a leader, who has grown up in this groove, how can he feel confidence in their ability to reach the enemy closed up, when he knows that every potato - field and every ridge and furrow loosens their order? Besides, between the ages of 40 and 50 the passion for riding is apt to die out, and with our system the leaders are able to do most of this work on foot, or halted quietly on the middle of the parade ground.

H. — But the divisional commander's place is with his reserve: he is hardly required to ride at the head of his division in the charge.

S.—If the cavalry cannot rally quickly, certainly he requires a reserve and his place is with it; but in the days of the great King when rallying quickly was a main point in the training, you will find

no instruction for the formation of a reserve, because as soon as the "rally" sounded a closed reserve was speedily formed. These are the King's instructions as to the way in which large bodies of cavalry were to form for attack. The first *treffen* closed in line; on both flanks overlapping, and a couple of hundred paces in rear, from five to ten squadrons of hussars to surround the enemy in flank rear; and to pursue as also to cover the flanks; and then a second *treffen*, usually straight behind the first: and in this order bodies of cavalry of double and even treble the strength of our present divisions were expected to attack over any kind of ground that came in their way, and the King took care that they did it too.

Here we will leave the conversation for the present, and add one or two remarks in explanation of the above, leaving it to another letter to develop in detail the principles of the King's training.

It is a great pity that none of the

English officers who served in the old Austrian Army have recorded their experiences in print, for there was much that we might learn with advantage from them. From all we can gather they appear to have been far superior to the Prussians, both better horsemen and more accustomed to work in large bodies. They were the only cavalry definitely trained to manœuvre in large masses, and it was no unusual sight to see 20 and even 30 squadrons charging in line across the exercise ground at Milan, and the ground they frequently fought over in Lombardy was of exceptional difficulty. The Saxon officer's description gives one rather an unfavourable idea of the German cavalry and must not be taken quite *au pied de lettre*. We have repeatedly seen their cavalry divisions manœuvring with a swing-and-go above praise, over both potato and turnip fields interspersed with open drains not big enough to be considered obstacles, but just the thing to throw careless horses

down, but we never saw anything of the kind happen. Indeed, though individually our men would get over ground far and away better than the Germans, in formation we would give the preference to the latter. In our last letter we described a squadron in column sweeping over a line of practice jumps without opening out or checking, and we will add one or two more examples to it. For instance, we have frequently seen a wing of a squadron when manœuvring deliberately made to charge, so that part of the front had to cross one of these jumps (which, by the way, never have wing walls), and we hardly remember ever seeing an accident. On another occasion a cavalry division with three regiments in first line charged across a gully, at the bottom of which was a nasty blind drain and a cartroad with very deep ruts, yet not a single man fell in the whole division, though they were galloping hard when they came across it. We have seen terrible grief in

a far less serious obstacle on the Fox hills ;
and as for the practice jumps down by the
Red Church at Aldershot, we should like
to repeat the Duke's remarks one day
when, on his way home from a *fiasco* in
the Long Valley, he ordered one regiment
over them ; but since in print they would
have to be given in a series of——
———, we may as well spare
ourselves and the printer the trouble.

LONG DISTANCE RIDES.

WE have received for review, a small pamphlet by Colonel Bengough, A. A. G. for Bangalore, on Cavalry Long Distance Rides, a subject which is at last beginning to attract some, at any rate, of the attention it deserves. The pamphlet consists of translations from the *Militair Wochenblatt* and *Revue Militaire de la Etrangère*, of accounts of different exercises of this nature carried out in Russia during the past two years, and a few notes on celebrated marches of our own army. We have only one fault to find with it, and that is, it is too short; particularly the portion which comes from the Colonel's pen direct. His remarks in his preface are so true, that we venture to reproduce them *verbatim*. "There is, I think, an innate prejudice amongst Englishmen against the practice of exercises in peace time as a preparation for war, and this is, I think, especially the case amongst

English Cavalry officers. Relying on the superior fitness for warfare of Englishmen and horses, we are apt to ignore the necessity of special training." Thus, in this instance no doubt, Cavalry officers may object to "knocking their horses about" by practising such distance rides, and will point to the feats performed by Lord Lake, General Gilbert, Colonel Barrow and others, as examples of what British Cavalry can do when required. But putting aside the point that leaders, such as these, are not always to be found when wanted (*vide* Chilianwallah), it is surely well for an officer to know, from personal experience, what his horses can, and cannot do.

It is true that Lord Lake and others did perform extraordinary feats according to European standards, but with how much greater ease and efficiency might they not have been accomplished, had both men and officers and horses been trained to them. But Lord Lake unfortunately has found but few imitators ; and probably, even at

the time, his officers objected to "knocking their horses about," and were only too glad to relapse into their ordinary condition of somnolence when their old leader left them. At any rate, the tradition had died a natural death before the days of the Mutiny, and there was no one at hand to resuscitate it. But he had found out the secret of success in Asiatic warfare, a secret which is as true now as it was then ; and that is, that you must not only be able to fight, but to pursue after you have fought, and that, to catch runaway natives, calls for the utmost exertion of both man and horse.

Troops trained on his system and led by such leaders, would have crushed the Mutiny at its very outset ; for a single Cavalry Regiment from Umballa, distant from Meerut 90 miles, would have prevented the mutineers reaching Dehli. But no ! the idea of Cavalry riding 90 miles in a day was so unusual, that it never appears to have occurred to any one. Each defeat

of the enemy would have been turned into a rout, had the Cavalry only understood what it was to "move." And history notoriously repeats itself. Let us hope if it does, that this time, thanks to the exertions of such officers as Colonel Bengough and General Luck, the idea of a 100 miles' march may be as familiar to every subaltern, as the detail of a guard-mounting parade. What is most wanted, is that men should realise more fully the capabilities of their horses than they at present do. The conventional idea of a pony or horse in this country, is an animal that can hardly be ridden or driven 10 miles a day without cruelty, though the miserable ekka pony, under-sized and half-starved though he is, is a standing example of the contrary. War and the preparation for war, are neither of them to be looked on as an amusement, and though it may be quite wrong, from a human point of view, to overwork an animal in the pursuit of sport or any other amusement, it is sentimental non-

sense to refuse to call on either man or horse at times to do their utmost, not only during war, but at times even during the preparation for war.

No Cavalry soldier or mounted officer is really efficient till he knows the utmost he can get, both out of himself and his horse. To under-estimate his powers and, therefore, not to undertake a service, is as bad as to over-estimate them and break down on the way. Either may lead to a general disaster. But these things cannot be learnt without practice, and if officers will not practise these things on their own initiative, it must be rendered compulsory by regulation. Indirectly a great advantage would be derived from it. By this course, for instance, we should get rid of all who were not physically fit for their work. It may be hard on the individual, but it is better for the State that a man should break down in peace, than that his place should become vacant just when he is most required, in war. There can be little doubt that,

by careful attention to this question, the capacity of our horses, also, might be much increased.

There is no reason why horses of English blood, such as Walers and stud-breds, or Arab crossed country - breds, should not, with proper training, rival the performances of the Turkoman horse. Colonel Valentine Baker is probably as good an authority on horse-flesh as we have had in the Army, and the distances he gives as having been repeatedly covered by Turkomans, after a raid, may be taken on the word of such an expert. Heavily laden with rider and loot, and dragging their captives after them, they think nothing of distances to which we have never attained. It is a pity that Colonel Bengough has not amplified his pamphlet by some hundred pages, and told us also what has been done in this direction in the German, Austrian and Italian services. In the former country, it has for some time been the custom for officers to ride long distance races against time ; the condition of

the horse, on finishing, being considered a principal factor in awarding the prize.

It requires at least as much judgment, endurance and knowledge of horse-flesh, to make the most of your horse, over a hundred mile course, as over a two-mile one, and for this reason it ought to appeal to our national instincts just as forcibly ; and on the score of humanity, it is certainly preferable to breaking a horse's back over that murderous "ditch towards you" jump in the N. Hunt course. In one single meeting at Crewkerne in 1883, nine horses broke their backs over this one obstacle, and in the many accounts of long-distance races we have studied, we cannot recall a single case of a horse having been permanently disabled. The long distances one often covers in the hunting field, hardly serve the same purpose as the race, for the exertion of the run itself is out of all proportion to the distance covered, but still the experience so gained is not to be undervalued.

Here are some of the figures which Colonel Bengough gives us. A detachment from the officers' school at Kresnoje rode 149 miles in $40\frac{1}{2}$ hours. Two Sotnias of Don Cossacks covered 210 miles in 72 hours, under the exceptionally severe conditions of frozen roads and heavy snow. Lord Lake's march was 70 miles in 24 hours in November. General Morgan Stewart did 90 miles in 35 hours. Coming again to the Russians, we find a detachment of Dragoons marching 216 miles in 77 hours.

We trust when a second issue of this interesting pamphlet is published, it will contain full accounts of General Luck's splendid march in Scinde, and also of the ride recently executed by a detachment of the 4th Madras Cavalry, and a division of V-1 Royal Cavalry, both of which seem to head the record, as will be seen by comparing them with the figures above, for which purpose, we give the distances again, *viz.*, 5th Cavalry 123 miles in 35 hours, and 4th

Madras Cavalry 315 miles in 134 hours. But though we have proved ourselves equal, it will be unlike Englishmen, if we do not strive to make ourselves unapproachably superior ; and we believe that if proper attention is directed to the matter, the improvement will be astonishing.

We have not space to go into the details of the pamphlet now before us, but it does not appear that in any of the marches therein described, the expedient of alternately leading and riding was tried. The relief this gives to the horse is well - known, though, judging by the average performance of Cavalry on field days, it is too often forgotten. There are other expedients for maintaining the strength of the animal on the march, such as tying raw meat round the bit, a favourite practice with hard riding farmers in Yorkshire. Weston's custom in his long distance walk might also be tried of giving both men and horses coca leaves to chew. For the former it would be cleaner than tobacco, and the latter would not

notice it if mixed with their feed. In conclusion, we can only hope that Colonel Bengough's pamphlet may be soon sold out, and that he may then see his way to giving us a considerably amplified second edition.

THE GERMAN CAVALRY MANŒUVRES, 1886.

IT will be within the memory of our readers that a considerable amount of political capital was made by the French papers out of the fact that the German Government refused to invite any foreign officers to the manœuvres of their Cavalry in Alsace this autumn. The more bellicose French papers wished to make a *casus belli* out of it, and even the moderate ones considered the situation serious. In reality there was nothing political in the matter at all. As a general rule it is impossible to find in the vicinity of the open and comparatively uncultivated district desirable for Cavalry work, adequate accommodation for the Emperor's guests ; and the scene of this year's manœuvres formed no exception to this rule. What, however, gave special importance to these manœuvres was, that it was the first occasion on which the new Cavalry regulations were practically tested.

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The special point in which these regulations differ from preceding ones, is in the increased prominence given to the rôle of Cavalry on the battle - field. "Cavalry must be prepared to charge even unshaken Infantry ; for till the attempt has been made who can tell whether the Infantry deserve to be considered unshaken or not ?" The Germans, at any rate, do not believe that breech-loaders have driven their horse-men off the field as yet.

Full reports of these manœuvres are now available, and they contain many points of interest to all branches of the service. The regiments employed were by no means the pick of the German Cavalry, but with the exception of the Hessians, were drawn from parts of the Empire—*viz.* the Rhine, Wurtemberg and Baden—least noted in this way. These countries hardly possess the stamp of horses, nor as yet the traditional system of horse management that the Prussians and Hanover have had for years ; and hence we are not surprised to hear that, in

point of endurance, there has been much wanting. The object of the experiment, however, was really to discover how far these countries had got in the assimilation of the Prussian system. The regimental management of horse flesh cannot be learnt in a few days, not even in years; and since uniformity of system is absolutely indispensable to the successful manœuvring of large bodies, it was desirable to see how far this had been attained. The divisions were, therefore, rather scratch packs; and hence the complaints, which appeared in the papers at the time, must not be taken as generally applicable.

After four days of Brigade drill, the Divisional drills began with an attack on Infantry, represented by detachments of fortress artillery, only a skeleton enemy. The Division was formed in three lines. In the first, three regiments of Dragoons; 200 yards in rear two regiments of Lancers; and about the same distance on the right rear a third regiment of Lancers. The

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trot was sounded at 4,400 yards' distance, and the gallop at about 1,000. Next came an attack on Artillery, in the same formation ; but with the first line at open files. The trot was again sounded at 4,400 yards, but the gallop already at 1,400.

Next day, the Division manœuvred to represent the action of Cavalry against all three arms during a battle. It was supposed to be itself acting in combination with an Army Corps. At 7-30 A.M., it rendezvoused to the south-east of the village of Weitbruch, hidden in a roll of the ground, and with difficult country in front of it. The general idea pre-supposed the whole of the Corps of Artillery in action. The two horse batteries, attached to the Cavalry, marked the end of the Artillery line, and their combined fire was assumed to be checking the advance of the enemy's Infantry : his Cavalry was not yet in sight. The Division moved off at a trot ; and availing themselves of a slight undulation, fell right on the flank of the Infantry, in

three lines each of two regiments. This attack was considered successful, and the regiments were still broken up in the *melée*, when suddenly the enemy's Cavalry, hitherto concealed by copses, came down on them.

We come now to one of the principal points of the new regulation. Formerly, after a charge, the "halt" was sounded; but as this left the troops still comparatively in hand, and in no way represented the actual confusion incident on an attack, the halt has been abolished, and instead, the troops engaged disperse and form the *melée*. It was in the hope of profiting by this confusion that the other side attacked. Only part of the third line still retained a degree of order: but nevertheless, the remainder rallied so rapidly, and charged so promptly, that they were held to have been successful.

The last day shewed the Cavalry at their best. The ground was exceptionally steep and difficult, but the manœuvres went off to every - one's satisfaction. Throughout

the proceedings, the principle of always retaining a closed body in hand was well observed, and the enemy's horsemen never got a chance ; and it must be remembered that, in peace, the fight against a skeleton enemy, owing to the greater ease with which its small bodies can be handled, renders the task of the opposing force more difficult than it would normally be. All this is a curious commentary on the lessons of our text-books and the decisions of our Umpires, who ever since the introduction of rifled firearms, have foretold the downfall of the Cavalry as an arm on the battle-field.

As our German critic pointed out the other day, the Germans themselves believed in this doctrine, till a happy inspiration on the part of a young subaltern caused Bredow's Brigade to be launched on what appeared to be the half of the French army (it actually amounted to some 12,000 infantry and 30 guns) ; and to the surprise of all spectators rode it down like a pack of sheep, in spite of the 1,200 yards

of open, fire - swept country they had to cross. Even then, it was some years before the prejudice could be overcome ; and it is chiefly owing to the opinion of Prince Frederic Charles, and the eloquent writings of Generals Von Schmidt and Von Kaehler, that such a complete change of opinion has been brought out.

The repeating rifle will not alter matters much. Opportunities for surprise will occur as frequently as ever ; and even where the ground does not favour the Cavalry, they can take heart. For it is a fact, established by experiment in peace time, and hence more likely to be correct under the conditions of the battle-field, that increased noise does not imply increased deadliness of fire.

Against the enemies which our Indian army will probably meet, this latter point deserves especially to be borne in mind. They none of them belong to the races whose nerves are steadied by danger and excitement combined ; and if only we find

the leader, our Cavalry will soon prove that they are not a mere auxiliary arm, to be trotted home as soon as the firing begins. Only let them give the leader the weapon ready to his hand, by studying in peace time the secret of success, which is "uniformity."

THE GERMAN FIELD ARTILLERY.

IMMEDIATELY after the campaign of 1870, the Germans set about rearming their field artillery: about the end of 1873 the new gun was definitely approved, and in less than two years the whole of their artillery had received the new equipment. When we consider that this rearmament implied the construction of about 2,000 field-guns with their limbers, waggons, &c., and the manufacture of new projectiles, &c., we, who are acquainted with the annual capacity of Woolwich Arsenal, may well blush for our country, the greatest manufacturing country in the world. The improvements then introduced were briefly these—between 300 and 400 feet a second increased initial velocity, a reliable time-fuze for shrapnel, the double-wall shell (analogous to our old segment shell, but without its defect of diminishing unduly

the bursting charge), and the introduction of steel carriages and limber boxes. The enormous increase in power which these changes brought with them does not seem to have been sufficiently taken into consideration by those writers and attack-system-mongers, who still base their ideas on the well-known but much disputed and somewhat irrelevant statement, that artillery fire in 1870 only accounted for a bare 4 per cent. of the total loss ; which may indeed be true, but which by no means affords a measure of the actual material results obtained by the gunners when they concentrated their fire against suitable objects. What these results actually were may be found in the pages of Prince Hohenlohe's letters about artillery, the most practical and readable book on the subject that has ever appeared ; summarised, they amount to about this, that the front of a line of guns was practically unapproachable by even good infantry, unless favoured by the ground. But these above-

mentioned improvements have fully trebled the power of the guns, whilst the means and method of employing them have also progressed in almost the same ratio. The chief of these has been the formation and development of schools of gunnery for both officers and men, and the provision of suitable ranges for the practice of field-firing, many corps possessing ranges large enough for the development of eight batteries at once. Before 1870 only a school supported by the voluntary subscriptions of the officers themselves existed, for the Parliament refused to grant the necessary funds, but the Artillery had felt so bitterly their own failures in 1866, and saw so clearly that it was no good having accurate guns if they did not know how to use them, that a school was voluntarily formed in 1867, which even in three years bore fruit on the battle-fields of France. The chief object of instruction appears to be getting the range by trial shots (for to this day they are without a rangefinder), and this is

developed to such perfection that they claim to be able to guarantee their third round hitting. Next in importance comes the controlling of the fire of long lines of guns firing shotted cartridges, and it is obvious that here the difficulties are enormously increased, compared with those under which a single battery conducts its fire. It is difficult to tell where one's own shells actually do strike when some thirty or forty are all bursting in and around the same object. The dense smoke produced by full charges comes drifting down across the front of the other guns, or clings to the damp ground like a dense fog, and finally the increased noise unsteadies the men; but though practice can never altogether remove these difficulties, it enables both men and officers to deal with them more readily and with greater coolness. With regard now to the manœuvring capabilities of the batteries, there are many points worthy of our attention, for we still stick too much to the old galloping style of the smooth-bore era. The

Austrian campaign fully opened the eyes of the Germans to the changes which the rifled guns entailed ; and in 1870 the formation of large batteries from the very commencement of the actions was, perhaps, the leading feature, but still much remained to be done, though the direction adopted was the right one, and it can hardly be open to question that the progress made in the last fourteen years must be much more considerable than in the three years before 1870. But this is a point almost impossible to judge of in peace, and here we touch almost the weakest point in the whole German organisation, *viz.*, the maintenance of only four guns horsed for battery in peace. In the first place, the march to a field-day with only four guns and no second line of waggons forms a poor preparation for the same operation on a war - footing (six guns), and similarly manœuvring four without, instead of six guns with appendages, is a far simpler operation. But a still greater defect in the present organisation is, that it altogether

prevents the proper training of the horses to fulfil the conditions required of them. Few seem to realise how great these exertions are; the distance from the advance guard to the corps artillery can rarely be less than five miles, and this five miles has to be passed over, generally across country, at a trot ; very often it is far greater. Let me quote a few examples :—The Guard Corps Artillery going into action at Villers Cernay (battle of Sedan) did 10 miles on end in a single trot; the Corps Artillery of the 7th Corps were lying in bivouac at Ottweiler, after a 5-mile march on August 6, 1870, when they suddenly received the order to march to the battle-field of Saarbruck, distant 22 miles. It was a good *chaussée*, but terribly hilly; nevertheless, they reached the battle-field in three hours. “The drag shoes could not be used, it would have delayed us too much,” says General Dresky in his report, and after this the guns went into action, and the exhausted horses had to toil some 2,000 yards through the

saturated fields. To prepare for these new conditions, it has become the custom of inspecting officers to order the batteries to parade, ready to march off on their private parades, at a given hour, and then send orders to rendezvous at a point some five to six miles distant as soon as possible. In this way, at any rate, both officers and men get some idea of the difficulties of covering long distances at a rapid rate, a thing which with a long column is by no means as easy as it sounds ; to keep up the same steady trot with the head of the column up and down hill, without losing distance, is a thing which cannot be done without long practice and experience. But no matter how thoroughly trained the peace establishment of horses may be, those brought in to complete the war establishment are necessarily in a very different condition ; called in suddenly from their work in the fields, &c., and accustomed generally only to slow work, it is hardly possible to call on them suddenly

for such great exertions, and with the railway concentrations of to-day, there is frequently no opportunity of getting them into condition before the day of battle. The Cavalry, on the other hand, owing to their larger establishment of horses and the fifth squadron, can take the field within a few hours, with all their mounts in thorough training, fit to march 30 miles a day for three or four days running. With regard to the driving drill, the same principles which enable the Cavalry to manœuvre in large masses with certainty, obtain also in the Artillery, each battery follows its commander just as each squadron follows its leader ; dressing is maintained by strict attention to time, and not by turning the head towards the directing flank. The battery commander gives the direction of the advance, naming some clearly visible object as far to the front as possible, and the men ride straight for it, with only an occasional glance of the eye to correct the dressing. That dressing

should be kept by only an occasional glance is laid down distinctly in our own book, but practically it is not much attended to : if any one doubts this, let him take up his position on Long Hill some day and watch an advance in review order across the Long Valley. He will probably see something like this,—every head turned anxiously to the directing flank, and turning the head inevitably brings every outer leg on and the guns begin to converge; presently, the drivers begin to notice that they are getting too close, and commence to diverge ; they overdo it a little, the error increasing as you get further to the flanks, and then they begin to swing in again, repeating the movement *da capo* till halted. Without exaggeration, the track of the outer gun is frequently almost as sinuous as a snake's track over sand. With regard to the change of position of large bodies of artillery in line, the Germans always work by groups of four batteries, each group working practically

independently, thus localising errors as they arise. In other points of drill there is little, if anything, for us to learn ; in point of turn-out and men there is no comparison possible. Even with regard to the horses, the superiority of ours to the eye is enormous, but I fear it is chiefly to the eye, for I doubt if we possess many batteries at the present moment which could do 22 miles in three hours, without the loss of half of their horses. Their manœuvring power over rough ground I should not be inclined to put very high; the country, as a rule, is so open that one seldom encounters an obstacle worth talking of, even in the manœuvres ; but I remember at one of these, seeing a whole horse artillery battery stopped by a little ditch full of water barely two feet across ; the banks were a little soft, it is true, but the gun wheels had not sunk enough to cause trouble till after they had been standing for some minutes, whilst they were trying to coax or drag the horses over. The

Crown Princess of Prussia and her suite (many ladies amongst them) galloped up and took the ditch in their stride, casting a look of compassion back on the poor gunners as they rode on up the slope.

THE TACTICS OF FIELD ARTILLERY.

THE recent action of the Secretary of State for War in reducing the most mobile portion of our field artillery has brought the question of the employment of this arm of the service more prominently before us than usual, and much has been written and spoken on both sides. But it is curious how weak, on the whole, has been the defence made by the partisans of the Royal Horse, and it says little for the technical training of their officers that a stronger case has not been made out, not merely for the maintenance of this most essential branch of the service, but for its large increase. As for the other side of the question—the arguments used show such an ignorance of the first principles of present tactics that they are almost beneath criticism. To arrive at a right understanding of the question, we must obviously

first realise clearly what it is that horse and field artillery will have to do ; and to this end nothing will serve us better than to consider the part allotted by the leading German tacticians to the artillery arm on the battle-field. It may be urged that Continental battles will be fought out between armies numbering as many hundreds as we shall have tens of thousands ; but no one will refuse to consider it desirable as an abstract proposition that we should equal our enemies man for man and gun for gun. Cavalry indeed appear to be the only arm of the service in which superior training of men and horses can compensate for marked inferiority of numbers ; with the other arms, equal weapons and a more or less uniform method of training render it improbable that even the best troops will win against odds of two to one. A translation of Von der Goltz's *Zufalls Schlacht*, published in a recent number of this paper, will have given those who read it a lively idea of what

fighting in these latter days is like. This author points out that pitched battles tend yearly to become less likely, and that the decisive struggles will spring from unforeseen encounters of separate columns, the fractions of large armies, both manœuvring with the object of outwitting each other. Two such columns, which we will assume to be Army Corps, whether on the English or German model does not signify, come into contact, and instantly all the neighbouring ones bend off in the direction of the fight. The first object in this, as in every other engagement, will be to establish a crushing artillery superiority, for the side which fails in this will be compelled to adopt the defensive and that, too, on an unprepared field. It is unfortunately the fashion with us to lay an undue value on this form of action, connecting it in our minds with invulnerable entrenchments, lined with steady well-armed troops, and with due notice given the field may no doubt be thus prepared. But the ac-

tual course of events will rarely be so obliging. Encounters will come on by chance ; the circumstances of the moment control the employment of the first troops to arrive, and it is difficult to imagine that they will be allowed to entrench themselves either in front or rear of the enormous artillery lines which will be the first to be formed. Individual detachments may, indeed, make use of their shovels to good effect, but it will be impossible to make a combined whole of their local endeavours.

Let us now see what the essential conditions of securing this initial preponderance of artillery fire are : is it a matter of numbers or of individual power of the guns themselves ? The relative weights of the projectiles of the field battery and horse artillery guns are fixed on principles which practically admit of no change, and hence it may be assumed that even when our new armament is issued, there will be no essential difference between them. At present the shrapnel of the former contains

about 20 per cent. more bullets than that of the latter. Will that exercise a decisive effect ? So very much the greater proportion of the bullets of shells of whatever calibre find their way to the ground, that if the horse gunners aim equally straight and burst their shells equally well—and there is no inherent reason in the nature of things why they should not—it would seem that gun for gun they have an equal chance of holding their own. Hence superiority can only be obtained by bringing a larger number of guns into action. Now here comes in the value of superior mobility. Taking the ordinary distances kept on the line of march and placing the corps artillery between the two leading divisions (assuming the English corps of three divisions), it appears that when the two advance guards come into action, the corps artillery will not be far off five miles in rear. If the troops are marching in perfect order and on a decently broad road, there will be little, if any,

difficulty in their making way for the guns. Often, however, the roads will be narrow and enclosed, and then the guns will have to go across country. Let any one picture to himself what this means, even in the autumn over stubble fields, and then imagine a similar advance through high standing crops and sodden ground, as it was at Sadowa, when the corn wound itself like brakes round the wheels, and horses dropped dead in their traces up the last hill. Over such a course horse artillery could give field batteries twenty minutes and a beating ; but once the range accurately found, and 20 minutes may mean extinction. Now take the case of the neighbouring columns. It will be singularly good luck if a sufficient number of accurately parallel roads not more than five miles apart can be found for all the marching corps ; if not, the distances between them at any given moment may be enormous. History has proved this on many occasions. At Sadowa and Vionville, for

instance, the corps artillery was upwards of fifteen miles from the spot on which they actually unlimbered when the firing was first heard, and on both occasions the distance had to be covered across country. Similarly for the other corps it is hardly conceivable that their guns can be less than 20 miles away from the point on which they are required, and again the distance must be measured across country. Now, judging from the German artillery, the relative speed of horse and field batteries may be taken as four to three. Thus horse batteries would cover the 20 miles under favourable circumstances, *i.e.*, open rolling ground and good going in three hours, field guns in four, and as the ground became more unfavourable the lighter arm would show to still greater advantage. Applying these rates of movement to the case of two armies, each of five corps meeting in a chance battle and assuming the corps artillery of the one army to be all horse (as Prince Hohenlohe recommends), and those

of the others to be all field (on the plan of the English "General who has commanded an army in the field"), we find that the first army would have the corps artillery of the first corps in action at least 15 minutes before the others—those of the two next corps on the flanks (assuming them to be 10 miles distant from the point on which they are required) 30 minutes before the others, and those of the most distant at least one hour sooner than the latter ; but the addition of from six to eight batteries at a critical moment would most probably be decisive : in any case the slower side runs the risk of being crushed in detail.

But there is yet another serious factor to be taken into account, and that is the supply of ammunition to these guns. Each horse battery carries at present 148 rounds, whilst the heavy batteries only carry 132, and probably much about the same proportions will be adhered to in any future equipment. Hence the lighter guns can remain in action longer, or can afford to

fire more rapidly than the heavier ones. Of course this inequality might be got over by a better organisation of the ammunition columns, but this is a service of the greatest difficulty, far greater indeed than that of the supply of cartridges to the infantry. Good infantry properly handled can fight out an action with 100 rounds, for they should never be in action long enough to exhaust so much without being reinforced by fresh troops from the rear. But guns must be always in action, and seeing that the average rate of fire of one round in every two minutes, with a couple of spells of rapid fire at about double that rate, will empty their waggons in a little over four hours, it is very evident that their re-supply is imperative. But the difficulties which lie in the way are almost insuperable, for they are in the nature of things. Columns are not as well horsed as the guns, and therefore not as mobile. They must be further to the rear and hence have more troops to get past, and German experience

is that infantry will make way for guns, but not for columns. Then the enormous extent of ground they require has to be considered, and the difficulty of finding even the brigades to which they belong. It is a serious reflection that, whereas the supply of ammunition to the infantry is considered to present no special difficulty in Germany, the other question is still felt to be practically insoluble.

Approaching this subject in view of the recent reduction in the Horse Artillery, and the reasons alleged for and against that measure, we pointed out in a previous article, first, the importance of securing a numerical superiority of guns from the very commencement of the action, since the side which fails in this is *ipso facto* compelled to assume the defensive, a proceeding which ninety-nine times out of a hundred spells defeat ; and, secondly, how all important a high degree of mobility was to the attainment of this predominance ; and that therein lay the chief argument for

the multiplication rather than the reduction of the horse artillery. We now proceed to examine the tactics of the arm when actually on the battle field.

The keynote of these tactics is undoubtedly the formation of large massed batteries ; but though on paper this sounds easy enough, practically it is a very different matter. The conduct of the fire of these masses is beset with practical difficulties from the very outset. One has only to reflect on the way in which the smoke hangs according to the dampness of the ground, the set of the wind, and a dozen other considerations, to see that it is not quite as plain sailing as might be imagined. It is usual to speak of long lines of artillery, and the idea conveyed by this expression is that of a hundred or more guns, accurately dressed in line, but, except where a ridge of the ground or a favourable set of the wind actually dictates this formation, such a line will rarely, if ever, be formed. Speaking now of the long rolling slopes which

characterise the greater portion of the ground, on which the great Continental wars of the future will probably be fought out, and taking the brigade of three or four batteries, it is more probable that each brigade will be formed in *echelon* at some 200 yards distant, either from a flank or from the centre. This seems the most practical method of dealing with the smoke difficulty and also of puzzling the enemies' aim. At a couple of thousand yards distance, in ground of the nature premised, it is hardly possible to detect that the guns are not actually in the same alignment. The next question that arises is, how can the fire of this line or line of groups be best combined upon the enemy? And on this point volumes literally have been written in both France, Germany, and Austria during the past few years. It is obvious that the more guns that can be brought to bear on a single battery, the sooner will that battery be put out of action; but meanwhile its fellows have a comparatively passive

target to aim at, and may succeed in doing irreparable damage ; besides, the difficulty of communicating orders to a large number of batteries has also to be taken into account. The most practicable solution of the difficulty, as far as regards the initial artillery duel with approximately equal numbers on each side, is to tell off battery against battery, but to combine the fire of each half battery on the flank and centre gun of the enemies' battery. In this way three guns are brought to bear on one, and the remaining four of the enemies' battery are sufficiently near the line of the bursting shells, not to be entirely uninfluenced by them ; besides, the control of the fire within the battery is very much simplified, and there is less risk of mistaking the bursting of the shells of a neighbouring one for those of your own. All this seems painfully simple on paper, but in the field when met with for the first time, these difficulties are very real indeed—it is indeed only another instance of the truth of Clausewitz's saying :—

“In war everything is simple, but to secure simplicity is hard.” What is specially needed, even when accurate range finders are employed, is a body of officers specially trained by practice in the field as observers, and in conjunction with the above a number of orderlies trained to deliver verbal messages accurately. The first point is of particular importance ; for when a number of guns are all firing on the same object which itself is wrapped in smoke of its own making, it becomes next to impossible to distinguish any one individual-shell. And to get over this difficulty it is proposed in Germany that in getting the range, battery salvoes, each gun laid on the same point, and with a difference of 100 yards’ elevation should be employed, the line of bursting shells thus formed being comparatively easy of identification. The second point is of equal importance ; for, if the result of the observations is incorrectly reported, the gain is entirely of a negative description. Now, an ordinary man, even

if not particularly excited, will, unless he has been specially trained for the purpose, almost invariably repeat an order in exactly the opposite terms in which it was given, and nothing but a thorough training will prevent him. This may seem absurd, but we recommend any officer who doubts it to try the experiment.

In normal ground (*i.e.*, gently rolling); the artillery fight may be divided into four phases: first, the preparatory stage, at ranges between 2,500 and 1,500 yards; the decisive stage, against the enemies artillery, between 1,500 and 1,000 yards; the preparation of the attack at the same distance and the final advance to case shot ranges, whether to confirm the decision or to pursue. One thing here must be specially dwelt upon, and that is, that it will no longer suffice to quote the experiences of the last war as to the effect, and therefore as to the duration, of each of these stages. The improvement in artillery has been so great during the past sixteen years that

previous data can be no longer accepted as guides. Not only has the range and accuracy of fire been doubled, but every nation in Europe is now provided with shrapnell and a reliable time fuse. In 1870 the French shrapnell could only be burst at ranges of about 1,000 and 2,000 yards ; and the Germans, well aware of the fact, always chose their positions between these limits, so that the French shells proved wholly ineffective. They themselves had no shrapnell at all for field guns, but now they possess one with a fuse that can be regulated to ten yards of range, more than can be said for our own. Except ourselves, every nation also possesses the double-walled shell, somewhat on the principle of the old Armstrong segment shell, the idea being that every shell should burst into an equal number of fragments, none of which should be unnecessarily large or unnecessarily small. This alone doubles the power of each projectile. Hence it is probable that both the artillery duel and the subsequent prepara-

tion will be decided considerably more rapidly than formerly, and hence, again, the necessity for increased rapidity of movement, for the original fundamental principle, that "artillery is useless when limbered up," must never be forgotten. This probability of the decision being more rapidly arrived at must never be lost sight of by the Staff. As it will no longer be possible to count on the infantry having time to form up in rendezvous formation from their long trailing columns of route, and hence we shall probably find a tendency to recur to the old Napoleonic and Fredrician system of marching on a broad front straight across country, so that it may be certain that the troops may be ready on the ground when the time comes for them to attack.

With regard to movements under effective infantry fire, it will appear blasphemy to infantry officers if we say it, but actually the artillery trouble themselves very little about their possible losses. They say that,

to begin with, they have just as good a right to die for their country, if necessary, as any other branch of the Service, and they are not afraid to take the risk. They maintain that, no matter how perfect the infantry weapon may be made in itself, its accuracy depends entirely on the nerves of the man who holds it, and they will take uncommonly good care to shake that man's nerves thoroughly before giving him his opportunity. The argument does not cut both ways, for their gun has no nerves and cannot shake. But even if the danger were far greater than it actually is, the moral effect, both in raising the spirit of one's own side and depressing those of the other, of the advance of artillery to case shot ranges is so great that it must be carried out at all costs. The advance of even a couple of guns to case shot range has again and again turned the scale even against most crushing odds. And since the cause of it lies deep in human nature, it can be relied on to do so again. There is, perhaps, no arm in the

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service less in want of theoretical instruction than the Royal Artillery, but on the other hand none require practical teaching more, for their tactics cannot be studied or worked out on the drill ground ; but opportunities on the practice ground can only be found by a liberal expenditure on the part of the State. Seeing the vital importance of the arm on the battle field, it is to be hoped that our Government in India will not be behindhand, but may see their way during the coming cold weather to bring together a sufficient number of batteries and to furnish them with a sufficient amount of ammunition, to enable them to acquire some practical experience before the inevitable storm shall break.

THE ATTACK FORMATION FOR INFANTRY.

FIFTEEN years have elapsed since the first encounter between troops armed on both sides with breech-loaders took place, and proved conclusively for those engaged, that the days for column and line formations in the fighting line were past for ever and that wide and far reaching changes in the drill-books were immediately necessary, on pain of certain defeat in the next campaign to those who neglected the warning.

Such changes were at once made in all continental armies, and for some years past every nation has had a system, more or less workable, for the employment of its infantry in battle.

But in the year 1886, and almost on the brink of a renewal of the Eastern Question, which may involve our interference on land, we stand alone of all the Powers, as

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unprovided with a plan of attack for our infantry as we were in 1870.

It is not for want of change. Of that we have had enough and to spare. But the changes have been introduced without sufficient regard to the conditions they were intended to meet. In fact, the Field Exercises since 1870 have never prescribed any formation for a combat exceeding the limits of a skirmish or partial engagement ; applied in a battle, they would hardly have carried us beyond the limit of effective infantry fire, say 700 yards. But it is only within this limit that the whole strain is felt, and where the want of a system to remedy the terrible confusion of battle is most apparent.

The drill formation for the attack should be drawn up with reference to the most difficult conditions with which it will have to deal. If it will satisfy these, it will easily adapt itself to less severe ones, but the converse does not follow.

Unquestionably the most difficult task

troops can be called on to execute, is the frontal attack of a selected position held by men approximately equal to them in quality and in armament. To fix clearly the nature of the task, let us see how the writers of the present day picture the course of a modern decisive attack on an enemy in a position of his own choosing, strengthened presumably by hasty entrenchments. Such a position may be assumed to consist of a long undulation of ground with open gentle slopes, no continuous obstacle in front, and a fair field of fire over the surrounding country, up to about 2,000 yards, at which distance a corresponding and approximately parallel ridge hides the movement of troops beyond from the eyes of the defender.

Let us further assume that the operations of the previous day have ended in the withdrawal of the defenders' cavalry divisions, and the discovery by the attacking cavalry of the limits and general outline of the enemy's position.

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The army itself has advanced to within a distance of some four or five miles of the opposing force, and bivouacs for the night, covered by outposts. We will confine ourselves to the infantry only of the army corps to which the execution of the decisive blow has been allotted, only referring to the action of the other arms when absolutely necessary.

The first step in the conduct of an action is to form a line of guns to crush the enemy's artillery fire, and, secondly, to prepare the way for the infantry. The time required to carry these two operations out, it is impossible accurately to determine, but experience shows that it may probably be measured by hours.

The troops on both sides being considered equal in quality, it will not be safe to attempt to form this first line of guns under cover only of the cavalry, as was so frequently done during the campaign of 1870 (not always with impunity even then, as witness the attack by Zouaves on the

batteries of Manstein's Corps (IXth) in front of Amanvilliers, at the commencement of the battle of St. Privat—Gravelotte).

It will be necessary, therefore, to send out in front of the artillery a covering force of infantry, whose duty it will be to prevent the enemy's establishing bodies of infantry near enough to seriously annoy the gunners by long-range fire, say within 1,500 yards.

Now at this stage of the action it cannot be to the interest of the defender to attempt a serious attack against the batteries, the loss to be faced is very heavy, and the result very uncertain; nor will it pay the covering party to get too close, for it would be impossible to maintain their exposed position for long within the range of aimed fire. They will, therefore, probably content themselves with getting within about 800 yards of the enemy's infantry, whose position, again, is fixed by the necessity of being at least 500 yards in front of their artillery in order to avoid danger from premature bursting of shells.

The attacking artillery will, in suitable ground, have chosen their first position at about 2,000 yards, which leaves them about 700 yards behind the covering party ; and since the supports cannot lie out in the open between the firing line and the guns, both on account of their exposure to the enemy's fire, and also of the danger of prematures mentioned above, and since, also, they cannot be drawn up immediately behind them, on pain of becoming the stopbutt for the enemy's overs, they (*i.e.*, the covering party and its support) will be separated from each other by a distance of at least 1,000 yards.

Hence it is necessary to give considerable strength to the covering party, as its position must be held at all costs, and its reinforcement is obviously attended with great difficulty. To complete the preparation for the attack, it is necessary to bring up a sufficient number of rifles to a range at which their aimed fire begins to acquire an actual power.

The fire of the covering-parties alone is

not sufficient to accomplish this purpose, nor will they, in all probability, possess in themselves sufficient momentum to advance to a shorter range after prolonged exposure to a heavy fire. Fresh troops, therefore, must be brought to their support through the line of batteries, whose fire, ceasing for a moment to allow them to pass, must be then resumed with greater intensity to cover their further advance. If this advance be made rapidly and unexpectedly, it will probably bring with it sufficient momentum to carry on the covering-parties some 150 yards nearer their object, a reduction of range which will not fail to have its due effect on the accuracy of the shooting.

Under cover of this fire the remainder of the troops allotted to the preparation of the attack approach ; these troops consist of those units of the first line* not

* Scherff divides the field of attack into two zones :—

Zone of preparation from 700 to 300 yards about.

„ of decision „ 300 to 0 „ „

300 yards is, therefore, about decisive range.

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already engaged, and it is their duty to carry on (by successive reinforcement) the shooting-line to within decisive range of the enemy's position.

The intervals of time at which these successive reinforcements will be required are deduced from the practical experience that, as the range decreases and the losses increase, a point is reached beyond which no troops can remain halted on the same ground for more than about five minutes. They must either advance or retire ; if they do not possess in themselves the requisite momentum to carry them forward before the expiration of these five minutes, they will retreat unless support reaches them. A reinforcement should, therefore, always be at hand, able to reach the shooting-line in time to prevent its retreat ; and a distance of about 400 yards practically satisfies this condition.

It is not necessary that the front of the reinforcement should be co-extensive with the front of the shooting-line, for the im-

pulse to advance will make itself felt to a considerable distance to either flank of the advancing body. In this manner the fighting-line advances till it reaches a distance at which the effect of the fire becomes overwhelming, say about 300 yards. And it now becomes the duty of the second line (or "Haupt-treffen") to give the final impulse for storming the enemy's position, clearing him out of it, and occupying its further boundary, leaving pursuit to the third line.

If the resistance is desperate, the second line may be called on to furnish supports to the shooting line before the limit of the zone of decision is reached; and may indeed be completely expended in the effort to gain it; in that case, the duty of the second line devolves on the third line, and that of the third line on the reserve.

But, in any case, the assault once started must on no account be checked till the further limit of the position is reached (*i.e.*, a point from which the enemy can be pur-

sued by fire). Here it must be stopped, and at any cost ; for this is just the moment when offensive returns promise the greatest chance of success, and when even against the best troops a dashing charge of a couple of troops of lancers may, in the absence of closed detachments of fresh infantry, turn the scale.

It is the special province of the third line to meet this danger, or, failing the third line, the reserve, which must therefore have followed the attack sufficiently closely to be at hand when wanted. But if the reserve itself has been necessarily retained by the leader for employment at some moment, or on some spot outside the sphere of the attack itself, *e.g.*, to cover the outer flank of the advancing lines against a counter attack, the rapid advance of artillery and of cavalry into the captured position becomes imperatively necessary.

This completes the picture of the attack, as drawn by the leading German author-

rities,* and we have now to apply our drill regulations to it, and to see in what manner they may be best adapted to the execution of the task before us.

The first and most salient points to notice is the entire silence of the regulations as to the duties, relative strength, and formation of the second and third lines.

From a study of the "Field Exercises," one would rise with the conclusion that a single battalion possessed in itself (when extended for attack) sufficient strength and depth to carry a position held by an equally well-armed enemy ; and all the suggestions hitherto made for their improvement appear to be based on the same assumption. But that such an assumption is untenable can be shown from history ; to give all the examples on which this opinion is based, would be, to reproduce about one-third of the Prussian official account of the 1870 campaign, and a similar fraction of the

* Scherff's *Kriegführung*. Meckel's *Taktik*, Cardinal v. Widdern's *Handbuch der Truppen Führung*, &c.

best histories of the Russo-Turkish War of 1877.

The following quotation from Meckel's *Taktik* (p. 209), while it does not explain why it should be so, will at least place it beyond doubt that in the opinion of experienced men, depth is essential to success in the attack :—

“One is inclined to under-estimate the consumption of men in the fight. It is difficult to grasp the idea that for a portion of the front on which only one man can fight at a time, it is necessary to have ten men in readiness, and to explain the matter and theoretically to show the necessity for so doing would be difficult ; here history alone can help us.”

Let us see, then, how far to the front our present authorised attack formation will take us, and how it may most conveniently be adapted to fill a place in any complete scheme.

The necessity for an adequate covering force for the first artillery position has been

already pointed out. This covering force, as shown above, must be strong enough to resist any rush on the guns, by its own fire, both on account of its distance from its support, and also because bringing them up would entail a cessation of the fire from the batteries at the very moment when it can least be spared (*i.e.*, when it is necessary to distract the enemy's attention from the advancing infantry).

If we take one man to two paces of front, then allowing for losses in taking up position (necessarily heavier than when lying down firing under cover), two companies will be sufficient to cover each group of three batteries. That guns must fire over infantry, and infantry be posted behind guns, is now-a-days unavoidable ; for it is necessary, in order to maintain an effective fire on the enemy, to bring them as close to his line of defence as possible without incurring too high a percentage of loss, say within 1,500 yards ; and hence, if the guns were placed on the flank of the attack, the

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range to that portion of the enemy's line opposite to the central line of advance would be unduly increased.

The question now arises, from what troops is this covering party to be taken ? Shall we break up a single battalion to cover the front of the batteries ? or shall they be the leading companies of the battalions of the first line drawn up in the rear of the guns, and waiting for the moment to advance ? The first alternative must be rejected, at any rate, in a pitched battle, though it may not be possible to avoid it in a battle developed from column of route ; because, since it is impossible to withdraw them, or to close them to a flank, when the attack itself advances, each of the battalions will be thrown into confusion from the very outset by the inter-mixture of men of another regiment, and at a time when an absence of confusion is specially important, in order that a thorough control of the firing (by using volleys) may be maintained. That the position of these companies is

much exposed is admitted, and also that great difficulty may be experienced in bringing up the battalions, each in rear of his respective company, but it is submitted that the possibility of preserving the units intact exists, whilst in the first case it is entirely lost.

The next step will be to commence the infantry preparation for the attack. This must be effected by reinforcing the covering party in such a manner that the fresh troops bring with them momentum enough to carry the previously engaged line forward to the distance to which the fire of dense lines of skirmishers becomes thoroughly effective, say between 600 to 700 yards. To reduce the loss whilst passing through the batteries, and to bring along the requisite momentum, the advance must be made in extended order, and simultaneously.

It is undoubtedly difficult to take an extended line down a fire-swept glaciis and to prevent them firing into the backs of the

men in front of them, but there is practically no better way of doing it. Even the Prussians have been forced to admit that the company column can no longer come within 2,000 yards of artillery fire, and to attempt at this state of the action, when the defender's attention is not yet riveted on the firing-line, to bring troops up in line through the guns would only lead to an involuntary formation of loose (as opposed to individual) order, with all the disadvantages which necessarily result when men take the law into their own hands.

At a subsequent period of the engagement, when the enemy's attention is thoroughly held by the volleys of the now reinforced covering party at effective range, line and even small columns may be brought up, but it will scarcely be advisable to count on even the third reinforcement being able to get to the front, except in extended order. The duration of the fire fight, which will now ensue, will depend on the extent and thoroughness with which the gunners have

done their work.* Except where a road or ditch running parallel with the enemy's front gives cover, ten to fifteen minutes must suffice, for the losses will rapidly increase as the enemy gets the range, and the desire to advance will evaporate rapidly, till perhaps the advance of even strong reinforcements will not be sufficient to overcome the inertia of the firing-line.

But the preparation once completed, the advance to the decisive range of about 300 yards must be pushed on with all possible speed, in echelons, one echelon covering the

* It is generally laid down that the artillery, after having subdued the fire of the opposing guns, should advance to effective range of the enemy's infantry. But, actually, such an advance could rarely take place, nor is it indeed necessary. In undulating country there will generally be but little latitude in choice of positions. The first will obviously be as near to the crest of the ridge as possible, so as to derive the advantages of concealment and command, and an advance down the slope of the hill towards the enemy would render the conditions for observing the effect of the fire, and for maintaining it to the last, over the heads of the assaulting troops, so unfavourable that it would be better not to make the change.

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advance of the other by its fire. The characteristics of this phase of the action are rapidly-increasing losses, frequent change of command, and growing confusion, as companies and even regiments begin to mix. As already mentioned, those who have had to face it say that within about 500 yards of the enemy's position the fire becomes so terrible that no troops can stand on their own ground against it for more than five minutes ; if support does not reach them they will retire.

This condition regulates the distances to be kept between the successive lines of the attack. A support must always be within such a distance of each echelon that it can reach it within the limit of time, say about 400 yards.

If the artillery fire has taken good effect, and the moment for the advance from the limit of effective fire (700) has been well chosen, it is probable that the shooting-line will press on to about 500 yards without reinforcement, but from 500 to 300 the

impulse for the advance will have to be given from behind.

The number of such impulses required will depend on the number of halts which have to be made, and these, again, on the length of the rushes, which should be long enough to allow the lying-down echelon to fire from two to three rounds, but not long enough for the enemy to change his aim from one echelon to the other ; twenty to thirty seconds satisfies both these conditions, approximately, and corresponds to a distance of 75 to 100 yards in marching order, or 100 to 150 if the packs have been taken off.

Short rushes of thirty yards must be absolutely condemned, since the number of reinforcements required will be practically proportional to the number of advances which have to be made from the halt.

Taking 100 yards as the limit of the rush and the conditions generally favourable to the attack, the troops of the first line will suffice to reach the point at which the de-

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cision commences, and their distribution will have been as follows :—

1st double company, covering the guns.

2nd double company, carrying on the 1st to the limit of effective fire.

3rd double company, to give the first impulse forward in the advance to decisive distance.

4th double company, to carry on the shooting-line from 500 to 300 yards.

At the moment the advance from the limit of effective fire commences, the supporting lines should be following each other at distances of 400 yards respectively, and should advance in quick time without halt or check, reinforcing at the double when such reinforcement is necessary.

Should, however, the resistance be obstinate, the forces of the first line will not of themselves suffice, and the second line will have to be drawn on. But this line should be brought up as far as possible intact, and in line ; it would not, therefore, answer to form it in two or more groups, as this would

detract too much from its momentum in the rush ; hence, if it is called on for reinforcements, these will have to be sent forward at the double. As the rapidity of the advance will have been checked by the obstinate resistance that has occasioned this call, and as the second line is supposed to maintain uninterruptedly its movement in quick time, the distance between the two lines will have probably been considerably diminished, and there will be no difficulty for the reinforcements to overtake the fighting line.

The third line follows the second in line, and at a similar interval, prepared to take the place of the second, if necessary, while the reserve accompanies the movement either on the exposed flank or in rear of the centre.

The main points to be insisted on are : (1) the rapid advance of the shooting-line from 700 to 300 yards ; and (2nd) that neither check nor halt is allowed to occur amongst the troops in rear. With regard

to both points, it is obvious that the amount of loss suffered is proportionate to the time under fire ; and if it were not for the absolute necessity for distracting the enemy's attention by the fire of the echelons during the advance, and also for the necessity of bringing the men up to decisive range as fresh as possible, it would be better to cross the whole intervening space without firing at all, but that being practically out of the question, we can only reduce the time occupied in crossing it as much as possible. The fire of the echelons in this stage of the attack is principally useful as a means of distracting the enemy's attention ; the conditions are altogether unfavourable to accurate shooting, and the only chance to reach, as rapidly as possible, a distance within the point-blank range of the rifle, from which to pour in a fire which makes up by quantity for absence of quality.

Hitherto we have only considered the front of a single battalion, and we have

now to combine the battalions of a division, which is practically the unit of attack in battle. It is true that the front of a British division formed for attack is in itself too narrow, being only about 800 yards, but two divisions attacking alongside of each other act each for itself, independently of the other.

We require three lines and a reserve. The usual proportions observed between these lines in Germany is, one-fourth of the whole for "Vortreffen," one-half for "Haupt-treffen," one-fourth for "Zweiterlinie" (our third line), and for reserve a detail from another command.

Our division of a brigade into three parts renders a corresponding grouping impossible, since it is inadvisable to split up the battalions. We are, therefore, compelled to make our lines all equal, *i.e.*, each of one battalion, and form the reserve out of one or more divisional battalions. The most convenient formation therefore for rendezvous will be a mass of brigades

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alongside of each other, the columns deploying as they get within artillery range.

The size of the echelon is the next point to be determined.

It should be a fundamental principal to make these as large, and consequently as few in number as possible. Prince Hohenlohe, in his pamphlet *Ueber Infanterie* (p. 94) says : "I have seen even more complicated advances by rushes practised. The fighting line was divided into three sections, of which each in turn ran forward. This goes against the grain of good troops, for when one section has gained ground towards the enemy and has opened fire, then honour and comradeship both demand that the remainder should hurry up to share the danger, shoulder to shoulder. The moment, too, in which the first echelon opens fire, is just the most favourable for the others to advance, for the enemy will have turned all his rifles on the men that ran forward first. Still

less practical is the experiment I have seen tried, of dividing the fighting line into more echelons, of which first the odd, and then the even numbers ran forward. The centre sections of the line, that remain lying down, have their field of fire so narrowed that they can do but little. For this reason I have never permitted, within my command, a fighting line to advance in more than two echelons. The front of each brigade should, therefore, form a single echelon, and as it is only equal to the front of two companies extended at four paces, which is practically the same thing as a single German company at war strength, it will not prove unduly difficult to handle.

But in any case the difficulty must be faced, for it is far out-weighed by the advantages of unity of command in the fighting line, and consequently the greater ease with which the direction of advance can be maintained.

This last point must not be overlooked ;

it is the natural tendency of troops, when fired upon, to move in the direction from which they supposed the fire to proceed, and a careful study of the early battles of the Franco-German War* will show many instances in which the companies of battalions brought into action as units in line of company columns, were, at the conclusion of the action, found fighting many hundred yards apart. Such disposition is obviously much less likely to occur in an advance composed only of two echelons, than in a line of similar length advancing in numerous smaller fractions.

It will be seen, therefore, that though the existing regulations fall far short of the actual requirements, their general principles may be easily adapted to form part of the larger scheme; let us now see how the recently proposed plan of attacking from double company columns

* *Vide* storming of the Vionville ridge at the battle of Vionville by the 20th Regiment infantry, 16th August 1870, *Pr. Off.* pp. 560-561, vol i. of original.

on the two centre half companies will answer.

It is obvious that it can only be applied to the battalions of the first line, and hence it would have little real influence in preventing the mixture of different battalions, which indeed no scheme, in practice, can ever prevent.

But, even applied to the first line, it presents numerous and grave difficulties.

In the first place, the covering party for the artillery will be formed by a line of sections under the command of subalterns and sergeants ; for it is evident that the captain cannot leave three quarters of his company, in order to take command of the remaining fraction ; and as an alternative, grouping four sections under one captain, would only be anticipating the subsequent unavoidable confusion.

Advancing another step : when the remainder of the half companies to which the sections in front belong, move forward to reinforce, how are they, as they emerge

from the smoke of the batteries (whose fire is maintained as long as possible, to cover the movement from the enemy) to recognise the sections to which they belong, some 600 yards in front of them. Picture, for a moment, the position of a young subaltern in command of some twenty men, half on one side, half on the other, of a gun-carriage, in front of him a veil of dense smoke clinging to the damp ground ; a shell bursting just to one side causes him and his men to turn their heads for a moment in its direction, and, when they resume their advance the next moment, what reasonable possibility exists that it will be in exactly the same line as that in which they started in ? but the least deflection will be fatal to their chance of hitting off the precise fifty yards of front into which they ought to fit.

It is, of course, true that similar confusion will arise in the case of any troops passing through the guns ; but the longer the line, the more difficult will it be to turn it out

of its true course. Even where, as in the case of smaller forces, the guns are posted on the flank, the disadvantages of a divided command will be felt.

The shooting line consists of a number of sections (or half-companies) of different companies, the support is of similar composition ; if one captain takes two units in the former, and another two units in the latter, both labour under the disadvantage of commanding a force, only half of which is made up by their own men.

If both captains stay behind with the supports, the leading of the fighting line is in the hands of the subalterns, a duty for which they are obviously not as fit as the captains, or if the places are again reversed, the subalterns have the still more difficult task of keeping the supports in hand, and preventing them from joining the fighting line on their own account.

Even in Germany, where few captains get their companies under twenty years' service, this difficulty has been so much

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felt, that the extension of a whole company (200 rifles) in spite of the length of front, is preferred by many writers as an alternative. Our small companies just meet the case, provided their numbers are well kept up. If a German captain can command a company of from 200 to 250 rifles, when extended, there is no apparent reason why an Englishman should not command one of half the strength, especially when we take into account the larger proportion of subalterns, and non-commissioned officers, which he has to help him. Whether the men are English or foreigners, the difficulty to be overcome in leading them will depend on the thoroughness of their previous training; if our system of company training is so very inferior as to render the control of an extended line of forty to fifty rifles impossible, the sooner we alter our system the better; for it is in that possibility that the only advantage of our eight-company battalions over those of continental armies lies; and more real good

will be derived from making the most of our own strong points, than by blindly copying the form, not the spirit, of the Prussian Army.

The size of the Prussian company was due to economic considerations, and to the difficulty of supplying a larger number of officers, of the social rank from which they alone were drawn. It has grown into their system, and they wisely make the best of it, but, like most human institutions, it has defects, which they frankly acknowledge.

These defects are the same, practically, which have been enumerated above, as belonging to the proposed double-company column, viz., the company, when extended, is too large for one man, and, if to reduce its front, half is extended, and half follows in support, the captain, to really command his company, must be in two places at the same time. Even then the front of the half company is equal to that of our whole company, but there are no complaints of its being unmanageable. The fact was dis-

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tinctly noticed, that in action, when both support and fighting line belonged to the same company, it was very difficult to prevent the former from joining the latter without word of command, an important point to remember when the conduct of the support has to be left in the hands of a more or less inexperienced subaltern.

Now these defects, which in themselves are not as great in the German system as they are in the scheme we are considering (viz., double-company column on the two centre half-companies), on account of the longer service and better training of the German subalterns, are all avoided in the old attack formation, in which each company is kept unbroken in the hands of its captain ; both support and fighting line being each in the charge of an experienced man, as long as they remain distinct. It is true that when reinforcement takes place, the two become intermixed, and on the parade ground, the senior captain takes command, but the chance of the two

captains being both unwounded at this stage of the action are too remote for consideration. Moreover, the conduct of the firing of the covering party, in the preliminary stage of the action, renders it particularly desirable that whole companies, and not fractions, should be employed; for this is the one stage of the action in which a systematic employment of long-range volley-firing is possible, promises most results, and enables the expenditure of ammunition to be still controlled.

But to obtain favourable effects from this style of firing, it is essential that the fire of a large number of rifles should be brought to bear on the object (see *Pruss. Mus. Regs.* of October 1875), and our company is practically the most convenient body we can employ.*

* I have not a corrected copy of our own regulations at hand to refer to, but till 1883 volleys by half-sections were recommended. It is difficult to understand how half-sections came to be considered as the fittest number of rifles for the purpose, for at that time there had been

In working by companies we still do not absolutely forfeit the chance of keeping the commands distinct, after the arrival of the first reinforcement. Generally the covering party will be able to obtain some cover, such as a bank, ditch, or hedge, behind which it can be closed to a flank to make room for the first support. Such closing to a flank is, of course, always possible under cover, though not out in the open. Even if the ground affords no cover, the positions the covering forces are to occupy will have been determined beforehand, and they will have entrenched themselves in them under cover of darkness or the morning mist ; and in many

no regular experimental inquiry into the subject, nor had the officers then connected with the Musketry Department any experience of modern European war. On the other hand, after three years of experiment and the most recent experience of war, the Germans decided on a company as being the smallest number of rifles to fire volleys at long range, and laid it down as a general principle that "a large number of rifles should be brought to bear," &c. Which opinion is most likely to have been well founded, the reader may judge for himself.

cases covered approaches for the supports may also have been arranged.

Once within the 700-yard limit, all power of controlling the fire ceases, and the personal influence of officers over men comes to an end. This is inevitably the case, for even supposing the men to be all heroes, their attention is fixed on the enemy in front, and it is impossible for them to keep themselves informed of the progress of the casualty roll in rear ; the man who commands them one minute is struck down the next, and there is nothing left for them to do but to join on to the first rush, from either flank, whose impulse reaches them, or to follow the first officer who will lead them.

In moments of intense excitements and danger, the mass of mankind, whether civilians or soldiers, recognise a leader by instinct, whether they have ever seen him before or not ; and, up to a certain point, as long as an officer is willing to lead, he may rely on the men following him,

no matter what company he may belong to.

Let us now examine the bearing of the above on the tactical training of the men in peace. It will be necessary to make a clear and marked distinction between the skirmishing attack of an advance guard or demonstrating body, and the decisive assault by which a battle is to be won. For the former, good shooting and skill in taking advantage of cover are the chief essentials ; for the latter, rigid discipline, a discipline strong enough to enable troops to face the unavoidable heavy loss, without thought of cover on the part of the individual.

The idea of drilling men like machines can no longer be entertained ; neither can we meet the difficulty by reverting to the old distinctions between troops of the line and light infantry. We can only succeed by teaching the men in the school-room the conditions on which success depends, and then by impressing it on them by

making a sharp distinction on the parade-ground between the two methods. It is in this point that our drill regulations principally fail.

The attempt to adapt the old skirmishing drill of the peninsula to the modern attack formation necessarily failed, for it was an effort to reconcile two totally opposite conditions, and it struck at discipline precisely where it was most important. The object in view in drilling men is not merely to ensure the execution of certain formal movements on parade under favourable conditions, but to give them true discipline, *i.e.*, the spirit to face heavy loss without flinching—the one thing, in fact, which constitutes the superiority of a body of soldiers over an armed rabble.

But our practice in peace practically ignores this, for it sanctions the relaxation of discipline at the very moment when, on the battlefield, the necessity of it is most felt. On the caution to extend for attack, the officers return swords, the men stand at ease

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without word of command, and henceforth the movements are made without attention to either step, dressing (or even silence sometimes) ; in fact, the whole thing bears the stamp of slackness upon it.

In Germany, on the other hand, the practice is exactly reversed ; when the signal to advance to the attack is given, all troops behind the fighting-line are called to attention, and the advance is made "in Parade Schritt," with drums beating and colours flying.*

This may be considered as going too far

* Till quite recently, with fixed bayonets as well ; but I believe that order has since been cancelled, though it still has many supporters. The fixed bayonet was the outward visible sign of the inward determination to come to close quarters. It is true that it interfered with the accuracy of the shooting ; but as that was always out of the question in the excitement of the decision, the loss was not serious. But if the bayonet was fixed on the rifle in the sensible manner adopted by the Turks, viz., under, not on one side of the barrel, the shooting would be absolutely improved, for the weight of the bayonet corrects the tendency of excited men to fire high. In fact, the Turkish rifle with fixed bayonet comes up to the shoulder so readily that one might snap shoot with it just as well as with a shot gun.

in the opposite direction ; but the principle is undeniably sound, viz., of fixing the men's attention by compelling them to attempt a difficult thing, so that their minds are not so open to receive other impression ; it is by no means an unheard-of expedient for steadying wavering troops, to halt them under fire and put them through the manual ; and the idea, in both cases, is the same.

There is, in fact, a close analogy between drill and mesmerism ; in both cases the patients resign their wills into the hand of the operator, and in both cases, ultimately, the will of the operator or commander becomes stronger than the natural disinclination of the subjects to do what is required of them.

This explains why men will always drill better under an officer whom they feel is in earnest, than for one whom they know to be taking no interest in it.

A horse is, in fact, even more susceptible of discipline than a man ; for, though

naturally far more timid than man, when once thoroughly trained, even when deprived of his rider, he will keep his place in the ranks, in spite of the dangers which surround him.

It is this that renders steady drill all important, as it enables us to overcome the natural instinct of self-preservation, and makes it easier for men to obey the will of another than to make up their minds to run away.

The necessity of such drill is greater now, perhaps, than at any former time; for the mental strain occasioned by a breech-loading fire is far heavier and of longer duration than that produced by the muzzle-loader.

At this point the opinion of those officers, whether French, German, Austrian, or Russian, who have fought against both is unanimous; and since we ourselves have never had to fight a battle against well-trained troops armed with breech-loaders, we must of necessity be guided in this matter by those who have.

If, then, in the days of Brown Bess, the utmost discipline was considered necessary to enable a line to advance through a zone of fire barely 150 paces in depth, how much more, therefore, is it now required, when the new arms have multiplied this zone of danger by ten !

Troops no longer fight in line, it is true ; but, to bring them up to the shooting line they must all pass over a fire-swept space, either in line or in a formation in which the maintenance of discipline is even more requisite, and at the same time more difficult.

The changes we require are simple. Drill must cease to be looked on merely as a means of securing a good march past ;* but it must be fully recognised as the method by which men are enabled to conquer their natural aversion to danger ; and to mark this idea the utmost smartness should be insisted on in the attack.

* But a good march past will be the inevitable result of steady drill.

Hardly more than a word requires to be altered in the drill-book, though the spirit in which it is interpreted must be changed. But to grasp the spirit is just the difficulty, for it is entirely opposed to the tactical teaching which the bulk of the army has been compelled to absorb in the struggle of its members for promotion.

We have been examined in minor tactics till our intellects appear to have become dwarfed and our judgment distorted. "We cannot see the wood for the trees." No doubt the knowledge we have thus acquired may prove most useful when applied in its proper place ; but its proper place is not the battle-field, and it is only on battle-fields that the fate of an Empire can be decided.

GERMAN EQUIPMENT.

Darmstadt, May 30, 1886.

CONSERVATISM is unquestionably a good thing in itself, but it is possible to have even a little too much of it, and this is certainly the case in matters military. It will no doubt be still in the memory of most of your readers that about two years ago the German Government offered prizes for new patterns of infantry equipment, new boots, new knapsacks, new helmets, &c. These new patterns are now in course of being tried, a company of infantry in each corps being furnished with them, and these companies are now executing trial marches through all the large garrisons. I have not myself had the good fortune to meet one yet, but have picked up some information concerning them from officers I have met. To begin with the boots, it is well known that the German infantry boot is, and has

been for centuries almost, a loose-fitting Wellington boot, so loose, in fact, that one can see the man's foot working about in it as he marches, and it is almost impossible to understand how he gets about in it at all. In the Eastern corps, a greased linen rag is worn, twisted round the foot instead of a sock ; but in the Western and Southern ones an ordinary woollen sock is used. It is said, though with what degree of accuracy I do not know, that this boot sent 42,000 men into hospital in 1870 with sore heels, and yet in the new equipment it is to be retained, with only slight alteration. It appears that they have tried our lace boot and gaiters, but do not consider it practical ; yet I have never heard a word against it in our own service, and it has surely had trial enough in the field during the last 10 years. The new knapsack, too, is still to be carried on the shoulders, the chief alteration having been to divide into it two portions horizontally, the upper half containing absolute necessities and the remainder

of the ammunition not carried in the ball-pouches ; and the lower, things which can be dispensed with for a day or two, so that on going into action it can be left behind to be brought on with the company waggons. In the new equipment 120 rounds per man will be carried, 30 in each of the two ball-pouches worn in front on the belt, and 60 more in two packets fastened one on each side of the knapsack in a more easily accessible position than formerly. The great-coat will still be worn *en bandoulière*, though that arrangement hinders the man in the use of the rifle, and renders his position when lying down far from comfortable. Entrenching tools will be carried as at present by 25 per cent. of the men only, an inconvenient plan, for, in the first place, when it is necessary to entrench there is work for more than that proportion of the men ; and, secondly, you cannot rely on the enemies' bullets observing the proportions sufficiently accurately, hence after every engagement, a re-

distribution of the tools must take place ; and since, when fighting is taking place almost daily, it is almost impossible to keep written lists showing the exact distribution of tools to the men, you soon lose all check over them, and can no longer prevent a man throwing his shovel or pick away if he finds it inconvenient, for it is almost impossible to prove whether he ever had it or not. There is another point about the ball-pouch worthy of note. It is a black pouch fitted to take 30 cartridges, each kept tight in its place by a leather division. Instead of opening upwards, like ours, the lid falls downwards ; hence, when standing or kneeling, if it is necessary to get off a number of rounds quickly as is the case when receiving cavalry, for instance, the cartridges are all ready to the man's hand, and he can fire almost as quickly as with the quick-loader. Everybody knows what happens with our own pouches. The lid being pretty stiff snaps back immediately one takes a cartridge

out. The cartridges being all loose generally shake down (as soon as there is room) to the very bottom of the pouch, where, without very long fingers, they are difficult to get at. It is almost impossible to see into the case, so that, when a little excited a man is as apt to fish out a jag, or a snap-cap, or something of the kind instead of a cartridge ; in fact, taking it all round, it is as bad an invention as the ingenuity of man could devise. The battalion quartered here is one of those served out with the new magazine-rifle, which it has now had about two years. Of course, the fiction of secrecy has to be observed. I call it fiction, for since a Frenchman in Berlin stole one of these rifles out of the arm-rack of a guard-house, and sent it to Paris, all hope of keeping its construction secret terminated. In outward appearance it is very similar to the Mauser ; it can be used either for single shots or as a magazine-rifle. How long it takes to reload the magazine I have been unable to learn. The

magazine is said to lie under the barrel, an objectionable arrangement for two reasons ; for, in the first place, the balance of the weapon is altered with every shot ; and in the second, the intense heating and concussion due to rapid firing are apt to cause unpleasant chemical disturbances in the detonating compounds used in the cap, and a few accidents would soon disturb the confidence of the troops in their weapon. A new bayonet is also being tried with this rifle. It is not more than 11 in. long, and is, in fact, exactly like the ordinary hunting-knife, made with a socket to fit on to the barrel, and is in every way a more sensible arrangement than the long skewer-like affair we carry, too weak to stand the strain of running a man through. Few men are deeper through the body than 10 in., and it is unnecessary to burden every man in the army with a needlessly heavy weapon in order to deal with the few cases of exceptional waist measurement we sometimes come across. The length of the

bayonet has really little to do with the matter, for once the thrust parried, the shortest sword can get in ; but it is curious that, while they were about the question, the Turkish method of fixing it underneath, instead of to one side of the barrel, did not strike them. The only reason why the bayonet should be fixed to one side, and not below the barrel, is because, in the old muzzle-loading days, the latter position would have interfered with the use of the ramrod, an implement which is never required (except for cleaning purposes), unless the breech action, like ours, is liable to jam, and there is no reason now-a-days why any nation should be content with one that does, for there are at least half-a-dozen which cannot do so. But the advantages of having the bayonet underneath the barrel are obvious. In the first place, the rifle has no tendency to turn sideways when brought to the shoulder ; and in the second, the additional weight counteracts the inclination a man feels to shoot in the air when

excited. Indeed, the extra preponderance given by the bayonet makes the rifle come up to the shoulder almost like a shot-gun. It may be said that the bayonet is of so little importance at present, that it is quite immaterial how it is fixed ; but this has by no means been our own experience in the Cape or Afghanistan, nor that of the Germans either. In nearly every village or redoubt that is carried a few desperate men always hold out and since in the excitement of the attack the men generally forget to fix them, the butt is invariably used. After the assault of the Düppel entrenchments in 1864 there was hardly an unbroken rifle left in those regiments of the Prussian Guard that took part in the assault, all the butts nearly were broken. I find a strong feeling amongst Prussian officers that bayonets should be fixed before the advance from the preparatory range in the attack, say 600 yards, commences, for the fixed bayonet appeals to the *moral* of the troops ; it is, in fact, the outward visible sign

of the inward determination to close with the enemy ; as for the objection that its vibration interferes with the shooting, it is too trivial for notice almost, for owing to the excitement produced by danger, and the unsteadiness due to the physical exertion of the running forward by rushes, the execution done by the advancing echelons in covering the 300 or 400 yards between the limits of the zone of preparation and that of decision, is too small to be worth consideration, the real object of advancing by rushes at all is to prevent the enemy showing their heads out of cover by filling the air with bullets, to unsettle his aim by distracting his attention first to one body, then to the other, and to encourage your own troops by the noise of their own firing. One word more about the physical endurance of the German troops ; in spite of all the disadvantages of bad boots, heavy knapsack, and heavy clothing, they manage to get through an amount of work really astonishing to an Englishman ; at Mainz

the "Grosser Sand," as the drill-ground is called, is nearly five miles from the quarters of some of the regiments; they parade about 5-30 A.M., almost always in marching order, reach the drill-ground in about an hour and three-quarters, and drill steadily in deep, heavy sand, far worse than the sand of the Long Valley, for a couple of hours, and then march back again, reaching their barracks about 11. They dine at 12, and then spend the afternoon either on the range or at gymnastics, and rarely get done with their work till 6 o'clock; and then in the evening they are to be seen about the streets, looking as fresh as our own men who have done about half the work. The natural consequence is that they look very healthy; none but sound men could stand the work; and thinking that though the men on parade looked sound enough, the hospitals might tell a different tale, I inquired what was the percentage of sick on an average, and was astonished to find that it barely reached 2 per cent.,

though Mainz was an exceptionally unfavourable quarter to take, since the men overheated themselves so much on the drill-ground, and were consequently more liable to chills when marching back in the teeth of the north-easters, which draw through the gap between the Taunus and the hills on the right bank of the Maine with exceptional violence.

GERMAN MUSKETRY.

A RECENT article in a contemporary, entitled "the Science of Musketry," displays such a complete misapprehension of the principles taught in the German Army, that we think it in the interests of the service to show the true points of difference which exist between our own and the German system. Briefly stated, the position taken in the article in question was as follows. The Germans, remembering the heavy losses sustained by their own and the Russian troops in recent campaigns from unaimed fire at long ranges, now go in for quantity not quality of fire. We, on the contrary, try to make up by quality what we should lose in quantity from want of numbers. The actual fact is, however, that the Germans in spite of their admittedly heavy losses from the above mentioned causes, believe less in long range "quantity" fire, than any other nation in Europe,

ourselves included. Their fundamental principle is, that battles are won by the steadily delivered fire of the masses at decisive ranges a very different thing from the mere quantity fire of our writer. They point out that, though long range fire undoubtedly has, on occasion, inflicted severe loss, yet the loss has never been decisive ; it has occurred more or less gradually, and even then has been out of all comparison to the number of rounds expended : whereas, even in the old smooth bore days, fire withheld till the last moment, say 50 to 60 yards, has frequently proved instantaneously decisive ; having destroyed, in fact, two-thirds of the opposing force. Our own Peninsula experience exactly tallies with that of the Germans. If space permitted, we could give a dozen examples, both from our own and German experience, in which a single volley, at point blank range, has resulted in almost the complete destruction of the attacking enemy ; and we would specially direct the attention of those

officers who may be exposed to the rushes of Afghans or Arabs to this fact.

But against a foe armed with breech-loaders, such a retention of fire becomes practically an impossibility. The enemy's aim must be shaken by our own bullets whistling overhead ; and besides, up to date, it has been found that human nerves are too weak for men to advance against the leaden hail of the breech-loader, unless encouraged to do so by the sound of their own firing. If the right to fire is not conceded to the men, they will take the law into their own hands, and return the fire without orders. We use the words "leaden hail" advisedly, for they are those instinctively used by all who have faced it. Thus an eye-witness of the charge of Bonnemain's Cuirassiers at Woerth said he could describe the sound of the bullets striking the cuirasses, as like nothing else except the sound of hail on a window pane. Another officer of the Prussian Guard used similar words, to describe the rattle of the

bullets on the hard ground in front. The dust thrown up formed a dense cloud through which they could not see fifty yards ahead. Hence the Germans are compelled to admit the use of long range fire in return, but they regard it as an evil, and restrict its employment by strict conditions, so as to reserve as much as possible their true massed fire for the shorter and decisive ranges. It is to these latter that the chief care of the instructors is reserved. The regulations point out that, though every man cannot be taught to shoot at long distances, every man who passes the physical test for admission into the army, can be taught to shoot fairly well at short ones ; and hence no man should be allowed to attempt long ranges till he can shoot well up to about 2—300 yards, *i.e.*, the point blank range of the rifle. Discipline and drill will habituate him to bring up his rifle horizontally, and if he can get direction, the flat trajectory will do the rest for him. This is the origin of their being taught al-

ways to aim at the lowest point of the enemy visible—the universal practice up till April last year, when it was partially altered and brought more in conformity with our own method.

The next great point of difference between our system and theirs is, that they consider accurate shooting in the field more a question of *morale* than of practice. They maintain that imminent danger will unsettle the nerves of the most accurate shot, unless those nerves are steadied by the controlling influence of discipline. Our recent experiences against badly armed savage troops has caused us to under-rate, far too much, the unsteady effect of a well aimed fire, at least in this particular connection. In regard to tactical formations, we over-rate it far too much. With the German, the idea of discipline is that of a controlling moral force stronger than the natural fear of danger inherent in man. To steady their men when shaken, German officers would halt and put them

through the Manual under fire. Thus, at Vionville, when Rauch's Cavalry Brigade, in advancing to charge French Infantry, lost their intervals owing to the pressure of other troops on the right, the late General Von Schmidt halted the Brigade under severe infantry and artillery fire, and made them correct their intervals by closing, then went "threes about," and walked his command back under cover. We believe that such a feat could not possibly have been executed by any body of individually brave men uncemented by discipline, and no mere barrack room discipline would have done it either. The word, in fact, has almost lost its meaning in England; and yet it is not eighty years ago since this very discipline made our thin red line the terror of the French column of attack.

In Germany, discipline and drill go hand in hand, for both are taught by the same instructor, *viz.*, the company commander. Germany never suffered from Musketry Instructors, for every Captain was made fit

to train his own men ; and if he could not or would not learn, then the so-called "blue letter" politely requested him to make room for somebody who would. It is true that great results did not immediately flow from the abolition of Musketry Instructors in our own service : but this has simply been due to the fact that you cannot, by the mere stroke of a pen, change habits of long growth, and military habits form no exception to the general rule. The German musketry system is far more perfect to-day than it was in 1870 ; yet the results obtained, even then, on the battle-field have perhaps rarely been surpassed. We give only one example from Prince Hohenlohe's work,* but one which shows especially the ideas on fire tactics current in the German army :—

" We were in position to the east of Garrené, fronting west. In front of Haybes lay two companies of the Kaiser Franz

* NOTE.—Briefe über infantie by Priuxa, Kraft v. Hohenlohe myselfingen.

Regiment, extended in a single skirmishing line. The enemy's artillery fire was practically silenced. Suddenly out of the hollow which runs from the southern edge of the Bois de la Garenne, a dense infantry mass appeared, bearing down on the above-mentioned two companies at a run. I estimated it about 5,000 to 6,000 men. This dense mass came on firing as it ran, from the rifles held horizontally at the hip. Although I at once turned the full fire of my 90 guns on to it, I felt extremely anxious for the two companies ; for if the enemy succeeded in getting within 200 yards of them, the fire on the head of the mass would be masked. And though the bursting shells created an appalling havoc, it still came on with the fury of despair. Presently I had to cease firing at the head of the column, which broke away from the main body and bore down on the two companies. I turned my telescope on to them ; and in contrast to the dense smoke of the French, I saw only here and there puffs of smoke

from our line, the whole of which was lying flat on the ground, rifles at the present. Only the Captain walked slowly up and down the line, warning his men to shoot steadily and slowly. But every shot dropped its man, and the number of the advancing foes became sensibly smaller. Individuals succeeded in reaching our line, only to fall at the muzzles of the rifles ; and the attack, so desperately carried out, burnt itself out. Only a few survivors turned to run, and these were soon bowled over by our pursuing fire ; in ten minutes, the whole mass was destroyed. Assuming that half of the column was destroyed by artillery, yet the odds were still nearly as ten to one."

Can England parallel the above, with an instance from our recent wars ? We fear not ; and if not, then, since our arms are far superior to the needle gun, and our men and officers at least as good, if not considerably better, it follows necessarily that our system is inferior to theirs.

LOSSES IN BATTLE.

IN military science, just as in other sciences accurate data are essential to the formation of sound opinions ; yet perhaps nowhere is this necessity more frequently disregarded. Regularly every year half a dozen new schemes of attack make their appearance in print, and practically every one of them commences, or at any rate alludes to the celebrated attack of the Prussian Guard at St. Privat, in some such terms as the following, “the unprecedentedly heavy loss of 6,000 men out of 18,000 in ten minutes, proved, once and for all, the impossibility of approaching an enemy’s position in anything but extended order ;” or words to this effect. The writer probably remembers having heard the expression used in some lecture on tactics at Sandhurst or Woolwich, and is quite contented to take it as a gospel truth, and on the strength of it to propose the abolition

of whatever does not happen to suit his doctrine. It was on evidence such as this, that the good old British line was condemned, and in its stead the present hybrid skirmishing attack, the laughing-stock of half Europe, was introduced. But a reference to the official account of the battle, and the lists of killed and wounded therein, would have shewn our writers, that the statement is actually incorrect, and the conclusion drawn from it at least equally so.

The story of the battle, according to the Prussian official record, is briefly this. About 5 o'clock in the afternoon, the IXth corps (next on the right of the Guards) was being hardly pressed, and to relieve this pressure, Prince August von Wurtemberg ordered, after seeking the concurrence of the Commander-in-Chief, the two divisional commanders to attack the enemy. The troops had hardly moved off, when it was pointed out to the Prince that the greater portion of the Saxons were not in sight, and that the artillery had not been

allowed time enough for preparation ; but the troops being in motion, the orders previously given were adhered to. The first troops to commence the attack were the 4th Guard Brigade, consisting of, in all, 26 companies, or about 5,500 men, "deployed in two lines with skirmishers in advance." Even during its deployment at St. Ail, it was overwhelmed by a shower of bullets ; and almost immediately afterwards it broke into skirmishers and advanced by rushes. The attack came to a standstill about 600 paces from the enemy ; but the men held their ground and did not retire. They lay out in the open till the final advance, which took place some two hours later, repulsing with the aid of the Artillery fire, the counter attack of the enemy's masses, when the final attack took place, they accompanied it, and continued fighting till far on into the night. Meanwhile the 1st Guard Brigade (about 5,000 strong) had advanced from its position, south-west of St. Marie aux Chenes, still preserving

its rendezvous formation, *viz.*, three lines of company columns, about 120 yards apart, and proceeded to change direction to the left under a perfect rain of chassepot bullets. It then crossed the high road, and continued to gain ground to the left ; but the fire proved more than it could bear, the rear of the column pressed on the front, and its change of front to the right does not appear to have been made as on parade. The attack, so disastrously begun, was pushed on with great courage, till within some six hundred yards of the enemy, where its momentum died out ; and like the 4th Brigade on its right, it lay down and held its own till the subsequent rush carried it on some two hours later. From the commencement of the movement, till the advance died out, about half-an-hour had elapsed. Now, referring to the talk of losses, we find that the 1st Guard Brigade lost altogether, during the whole day's fighting, 72 officers and 2,100 men ; the 4th Brigade almost exactly the same num-

ber ; or a fraction over 30 per cent. of their respective strengths, in an action which lasted at least three hours-and-a-half. Even if we assume half of the whole loss to have been suffered in the first half hour, "the 6,000 out of 18,000 in ten minutes" is reduced to 2,000 out of 10,000 in half an hour ; a very different state of things.

It is doubtful whether a single rule can be deduced from this experience, which was not perfectly well known before. The fact that troops in column could not be moved to a flank under effective infantry fire, had been demonstrated many and many a year before, even when infantry were still armed with Brown Besses, the fate of the French Imperial Guard, under the fire of the 52nd at Waterloo is a case in point. There is no difference in the two cases, except in the range, and it was in not realising how greatly that range had increased, that the Prussians made the mistake. That unshaken Infantry could not be attacked in front without the support of

Artillery, was also perfectly well known in Frederic the Great's day. The fact is repeatedly referred to in his writings; but here, as so often is the case on a battle field, circumstances were stronger than rules. The Guards *had* to advance to relieve the pressure on their comrades of the IXth Corps, and since the German rifles only carried about 500 yards, they could only do this by attacking. If Generals will insist, or are compelled to attack under such disadvantageous circumstances, their failure is a matter of certainty; but this proves nothing against the chances of success of any other form of attack. Yet it was on such evidence as this that the "thin red line" was condemned. We wonder whether it ever occurred to any of our system-mongers to examine the statistics of some of our old battles of the Peninsula, *e.g.*, Albuera, where "1,800 unwounded men, the remnant of 6,000 unconquerable British soldiers, stood triumphant on the fatal hill," or the losses individual Regiments suffered

at Quatre Bras or Waterloo. The battles of the Seven Years' War all tell the same tale, and even at Jena the Prussians stood their ground under losses double and treble that of the Guard. And it must be remembered that, as a rule, these losses were suffered suddenly, in the manner most trying to the "morale" of the troops; for when the fire was only effective at about 200 yards, the assailants were obviously exposed to it for a less time than now, when it is killing at even 2,000.

But if it is objected that all this happened a very long time ago, we will take more recent examples from the American war, where the accuracy of the shooting more than compensated for the want of rapidity. Indeed, to our mind, there has been no fighting of late years more instructive to us Englishmen than this little-understood struggle, for the men on both sides were of our own flesh and blood. The celebrated charge of Pickett's Division at Gettysburg is a magnificent example of what losses Anglo-

Saxon troops, and not long-service or highly disciplined troops, can bear. It is true that it failed ; but the reasons for the failure were exactly the same as at St. Privat, *viz.*, want of adequate artillery preparation, and ignorance of the mechanism of the attack.

Let us assume, for the sake of argument, troops of the same quality, formed up for the attack, well out of effective range and sent into the assault of St. Privat after adequate artillery preparation. Let us further assume them formed in three lines at about 500 yards interval, with a reserve in rear of all, and imagine them advancing and firing by echelons in the old-fashioned style, then since they would have covered the whole distance up to the walls of the village, in 15 minutes, it is not conceivable that they would have suffered the same loss as the Prussians actually did in a three hours' engagement ; more especially taking into account the well-known fact, that owing to the French forgetting to put

down their sights, as the range decreased, this fire was actually more deadly at long, than at short ranges. Yet even had the losses been equal, they would not have sufficed to have stopped troops of the old Peninsula stamp; and, looking at the composition of those troops, both morally and physically, our present material is at least equally good, if not better. The facts relating to the recruiting of our army in those days, as far as the men's character is concerned, are too well known to require further reference. Never since the Peninsula have we been compelled to empty our civil prisons into the ranks; and it may not be so generally known, but it is nevertheless equally true, that our standards of height, age, and chest measurement were even lower then, than it is now.

So far from the experiences of St. Privat having led to the abolition of line attacks in the German Army, they have had a precisely opposite result. The basis of the modern German attack is the line forma-

tion pure and simple only "sublimated" as a German Officer once said to us. It is true the fighting line no longer advances with faultless dressing and at 75 paces a minute, but it is practically a line for all that for its early reinforcements bring it up to nearly two men to the pace. It is a line with loose feeling, the men having just room enough to handle their arms with effect. Instead of the advance by echelons with volley firing, we have the advance by rushes with independent firing. No volley firing is ever practised in the German attack. Behind the fighting line, except under unusual circumstances, no company columns,—which by the way we have been so anxious to copy,—are ever seen; the advance is made in line, with the strictest attention to step and dressing. The full force of discipline is brought to bear on the men, in what is the most trying moment of their duty, *viz.*, the advance under fire without being able to reply to it. Had we waited till the actual facts were before us, we too

might have preserved the advantages of our old traditions, but instead of that we tried to graft a new system on to our old Light Infantry drill, which was the best for its purpose in the world ; but its purpose was not the delivery of the decisive attack on the battle field. The changes we should have required, would have been few and simple, and if our infantry leaders had been made to understand the true power of artillery fire, would have given us a form on which we might have confidently relied. The first line, formed at elbow distance, to advance at a run, by echelons of half battalions, then to lie down and fire, to cover the advance of the second half battalion ; on a large front, the echelons to consist of whole battalions. The second line to maintain a uniform quick step, never halting or lying down, but closing on the first, to give the momentum necessary for a rush. The third and fourth lines, or more if necessary to advance in the same way. The difficulties about intermixture of companies, etc.,

are only peace-time matters. What does it matter to an officer, who commands his men, when he is lying with a bullet through the head. And as for the men, in such moments of supreme excitement, they will follow any man who is brave enough to lead. And we may bear this in mind for our consolation, that the experience of both our own army and that of the Americans proves, that troops with British blood in them require less leading in an attack than those of any other race.

DISCIPLINE AND THE BREECH- LOADER.

IT is now a little over twenty years ago that the breech-loader first made its appearance on the battle-field ; and a sufficient mass of data is now at hand to enable us to form some opinion as to the conditions for its best and most effective employment. In the first place, it is interesting to note that almost all the predictions made on its behalf by its supporters have been falsified by events. We were told—and though able and experienced soldiers protested against these ideas — that the power of the defence would be enormously increased ; that the weapon would place the youngest soldiers on an equality with the highest-disciplined, and therefore that superiority of numbers would be the decisive factor of success ; that cavalry would be banished from the battle-field ; that in savage warfare one man with the breech-loader

would be worth ten with the muzzle-loader ; and many other prophecies more wild and far-fetched have been and indeed are still being hazarded. But how have these opinions borne the test of the battle-field ? To begin with, the force which took the offensive has almost invariably won. Belfort, Plevna and Baker's fight in the Balkans, on the last day of the year 1877, are almost the only triumphs scored by the defensive ; and in each instance the conditions were of a too exceptional nature to admit of their being brought into the argument. Belfort was fought by highly disciplined Germans against half - starved Mobiles. The attacks on the redoubts at Plevna failed for want of combination of numbers against the decisive point owing to the incompetence of the Russian leaders ; and in the last-quoted instance victory was due to the magnificent fighting instinct of the Turk and the determination of his General, a born leader, if ever there was one. The battles of Vionville, and those which

took place in the latter portion of the war after Sedan, proved conclusively that real discipline was still more than a match for numbers, even when the numbers had the advantage of a far superior weapon ; and the new cavalry regulations of Austria and Germany shew that, in the opinion of the most experienced soldiers of the day, the glory has not yet departed from the mounted forces. But finally—and this is the most important point for us to consider—events have not shown that, against savages, one man with a breech-loader is equal to ten with the muzzle-loader. We may search the records of our last twenty years as closely as we please, and yet we can find no single instance of a British regiment achieving such results by its fire as the 22nd (Cheshire) Regiment at Meanee and Duba, or, to go further back, as the 52nd at Waterloo, though the latter case, of course, was against Europeans.

To reconcile the apparent contradictions in the above statements, seems at first sight

almost hopeless. The key-note of breech-loading tactics is the increased individuality of the man. Hence we should naturally expect to find that the race possessing the highest degree of individual fighting instinct should obtain the best results from it. But, actually, the facts are against us. The French possess a greater amount of individuality than the Germans, and the English than either, yet neither have succeeded to the same extent as the Germans. The latter cannot equal our range-shooting even now, and they have improved vastly since 1870: yet actually on the battle-fields of that year, they attained a decidedly higher average of results, even against a superior weapon, and when exposed to the more demoralizing influence of heavy artillery fire than we have since obtained against half-armed savages. To prove this point in the limit of our space is impossible. We can only refer to a case we quoted some time ago of the shooting of a company of the Prussian Guard against the last des-

perate effort by the French to break through at Sedan. The company, certainly not more than 200 strong, fairly shot to pieces a French attack made by some 3,000 desperate men, and that too, to within the limits of about 500 yards of their muzzles. The charges of the French cavalry, most gallantly executed, all broke down before the steady file-fire of the Germans, though on several occasions it must be admitted they went within an inch of succeeding. But, in the absence of special fighting instinct, individual intelligence and skill in the use of their weapons, to what can we attribute their extraordinary success?

We believe there is only one answer to be given to this, and that is contained in the single word "discipline." We reject altogether the new-fangled expression "fire discipline," a word which we have coined to mark the fact that the actual meaning of the original word has escaped our memories. Formerly it meant with us, what it still means in Germany,—the power which

enables men, in presence of danger and death, to overcome the instinct of self-preservation, which makes it easier in fact for a man to face certain destruction than to make up his mind individually to run away : now-a-days, it is taken to be synonymous with clean defaulter-sheets and an absence of courts-martial—a very different state of things. In its true sense discipline hardly exists in our army, though in the navy it is, perhaps, higher than it ever was : this is not a result of short service, though it is often asserted to be so. We have only to look at the Austrians, Germans, and Swedes to see that it is quite possible to attain a higher standard than our own even with half the service. In all these three armies, troops move quicker, more accurately, and handle their arms with greater smartness, than we are accustomed to see. The special difficulties with which we have to contend, such as weak companies, etc., will not suffice to account for it, for other armies have their difficulties too.

Besides, it must not be forgotten that we do not claim to be merely the equals of these other races, but we are all more or less convinced that we are decidedly their superiors, and the history of our race proves it. The truth is we set about our troop-training from a diametrically opposite point of view. The continental system is more a moral than a physical one, though there is a good deal of the latter too. Its object is to accustom the soldier to fatigue and privation, to train his will, in fact, and make a man of him. It is not so much to develop his muscles, that the long marches of the manœuvres are intended, for they soon lose their tone when he reverts to civil life, but the knowledge of what has been accomplished remains with him as an abiding fact, and he feels capable of doing the same again when called on. The iron drill of the barrack yard is maintained as a check on the over-development of the individual instincts ; and renders it possible to keep the men under control, even under

the disintegrating conditions of the battle-field. Musketry is taught to give the man confidence in his weapon, but neither he nor his officer is allowed to regard it as the be-all and end-all of a soldier's existence.

With us all this is different. Drill is sacrificed to musketry, and the moral part of the training is altogether neglected. Could anything be more demoralising than the enforced idleness of our infantry in this country? Can it be expected that a man who has been trained to believe that he will die if exposed to the sun between the hours of eight A. M. and six P. M., and that he is not physically capable of marching round his cantonment with arms in his hands for six months in every year, be expected to face the hardships of a campaign? He does it, though, in spite of his training, and because he is at heart an Englishman. And is all this caution necessary? We believe not, for men of the same class are employed on our public works pretty well without regard to temperature, and we do

not know that their death-rate is so very much, if at all higher, than that of the infantry. Our mounted troops are not nearly as much coddled as the others, and their average of health is, we believe, decidedly higher. Even if it were not so, it does not do to make a man regard his life as an absolutely inviolable possession—certainly not, if you want him to risk it freely. Even if a few of the weaklier ones died, the gain morally to the survivors would be worth the cost. No man is worth his salt till his will and endurance have been tried ; and even an outbreak of cholera is not without its value to the survivors. Why not take a lesson for ordinary use from our practice when such an outbreak occurs. We do not know that the general health of the men is impaired by going under canvas ; and why should they not do it oftener.

We would not recommend a return to the German barrack-square system ; for the class of men we have to deal with is

essentially different, being more intelligent and possessing more innate fighting instinct ; but we should like to see something approximating more to the naval system, which develops to the utmost the alertness and intelligence of the men, without wasting one moment in pedantic accuracy of movement, which does not add to fighting efficiency. How this can be done we cannot, within the limits of this article, pretend to say ; but of this we feel assured, that not until our training is directed to developing the *morale* of our men, will we be able to derive the full advantages of our present, and still more, of our future armament.

THE TACTICS OF THE AMERICAN WAR.

IT is curious to note how little attention has been devoted to the study of the fighting of this most bloody of modern wars ; and yet it would seem that the records of these campaigns fought out to the bitter end by men of our own Anglo-Saxon races, would be a far more likely source of information, from which to deduce the theory of an attack formation specially designed to meet our needs, than the histories of struggles between French and Germans or Russians and Turks. Von Moltke is reported to have said that, "nothing was to be learnt from the struggle of two armed mobs." If that is really the case, which we venture to doubt exceedingly, the great strategist must ere this have been sorry he ever spoke, for armed mobs or not, both Southern and Northern troops bore, and bore victoriously, a percentage of

loss, before which even the best disciplined troops in Germany, the Prussian Guard Corps failed to make headway. It is of no relevance to the argument, to say that the breech-loader was not then in use. When a man is hard hit himself or sees his comrade rolled over, it never enters his head to consider whether the hit was scored by muzzle-loader or breech-loader; the fact itself, that he or the other man is down, is the only one he concerns himself with, and when the percentage of hits in a given time rises high enough, the attack collapses equally, no matter against what weapon it may be delivered.

Actually though the armament was inferior, the percentage of hits was frequently far higher than in breech-loading campaigns. There is no action on record during recent years in which the losses rose so high, and in so short a time, as in the American fights. At Frederisburg, Meagher's Irish Brigade, 1,200 strong, lost 963 men in the attack of the Stone fence

below St. Marye's heights. The confederates, standing six deep under cover reserved their fire till the attack came within 120 yards. And in a few moments it was simply destroyed. At Gettysburg, Pickett's division, some 4,000 strong, attacking in line penetrated into the heart of the federal position but only with some few hundred men, (about 300 to the best of our recollection,) the remainder having fallen on the way, the survivors held on and did not run, but being unsupported, they eventually surrendered themselves prisoners. Surely, Moltke never spoke of such gallant soldiers as an armed mob, seeing that they succeeded in driving an attack home against four times the percentage of loss that stopped the Prussian guard at St. Privat, that fatal event to which we owe the loss of what was best in our drill-book, the thin red line. And assuming for the moment, that the saying attributed to him is really true, we cannot help fancying that he must have often bitterly regretted it, when watching

his own men in the manœuvres of late years, attacking in what is really, practically the same formation which the armed mobs worked out for themselves.

The points of contrast between ourselves and the American are far too numerous to be dismissed without comment. They began the war with a drill-book and system modelled on our own, and they carried it out to its conclusion, with only a few modifications of detail but none of principle. The normal prescribed idea of an attack appears to have been as follows: A line of scouts, thickened to skirmishers according to the requirements of the ground; from 2 to 300 paces in rear, the 1st line, two deep precisely like our own, then in rear a 2nd line and reserve. Of course their lines did not advance with the steady precision of our old peninsula battalions. Their level of instruction was altogether too low, and besides the extent of fire swept ground had greatly increased. Eye-witnesses say, that after the first few

yards, the line practically dissolved itself into a dense line of skirmishers, which threw itself forward generally at a run as far as their momentum would carry them. Sometimes if the distance was short carrying the position at the first rush, but more generally the heavy losses brought them to a halt and a standing fire fight ensued. They knew nothing of Scherff's great principle on which the "Treffen Abstände," or distances between the lines are based, but they generally worked it out in practice pretty successfully. The second line came up in the best order they could and carried the wreck of the first on with it; if they were stopped, the reserve did the same for them, and either broke too or succeeded. The principle that every attack should be prepared by artillery fire, though known, was yet imperfectly understood, and the want of artillery and still more the difficulty of the ground frequently led to its being disregarded, but the neglect was dearly paid for as a rule. Of course, things

did not always work out in practice as they were intended to. Hot-headed Brigadiers and inexperienced Staff Officers frequently caused single lines to be sent to certain destruction ; others were responsible for losses of distance and time which left the front line unsupported at the critical moment ; but as the war went on, the necessity of putting in men in greater numbers, *viz.*, providing by successive lines, 6, 8 and even 10 men per yard of front made itself more and more felt, and at last whole corps were sent to the attack on a front of over 3,000 yards and in five successive lines. There was nothing in the Franco-German war to compare to these monster attacks ; in that campaign, attacking corps generally resolved themselves into three or four isolated advances not exceeding a brigade (6,000 men) in strength, and want of combination in time and direction frequently made itself most detrimentally felt, mistakes not liable to occur again, the lesson was too bloody. We do not advo-

cate these monster attacks, for there is a limit of front in attacking (about 2,200 yards) which cannot be usefully exceeded, and for this a strength of two British or one Continental Brigade will usually suffice; greater extension only leads to an unnecessary expenditure of men.

Another point also was established by experience, *viz.*, that once an advance is commenced, any stopping to fire is to be deprecated, the impulse forward is lost and can only be recommunicated by the pressure of fresh troops from the rear. Besides, it leads to an enormous increase in the losses. In a general action the bulk of the firing is necessarily excessively inaccurate, for, on the one side, the defender's nerves have been shaken by artillery fire, and, on the other, excitement and the exertion of running forward unsteadies both hand and eye to such a degree that very little result is to be hoped for from the attacking fire against targets the size of those exposed by troops well posted on the defensive.

The best Wimbledon marksmen would make very poor percentages against targets the size of a loophole in a log fence, under battle conditions at 400 yards or even at 200 when exposed to the full intensity of the defender's fire, and, of course, with the muzzle-loader, it was impossible to send in the absolute storm of bullets the breech-loader can deliver, which more than balances the want of quantity by its quality. But whether breech-loaders or muzzle-loaders the argument is the same, the numbers of hits on a given target will vary directly with the time the target is exposed to fire, and hence one point to be considered in every attack, is to reduce the time required to pass the dangerous zone to the minimum compatible with other conditions. These other conditions are both physical and moral. Physically it is practically impossible for men fresh off the road and carrying heavy kits to run 1,000 to 1,500 yards, or even half that distance, and morally it has been found impracticable to make infantry

advance under fire without the encouragement of the sound of their own firing. In fact, the distance men will march under fire without returning it, varies directly with the quality of their discipline and courage, a fact of great importance in applying the American experience to our own use.

In Germany, since the war, a compromise between the various conditions has been arrived at in the following way:—The artillery preparation having been completed, the infantry advance in a dense skirmishing line, each man having only just room enough to use his rifle with effect, firing must not be commenced one moment before it can be avoided, but it is the duty of the officers commanding the fighting line to judge when that moment has arrived and to anticipate by his order, the men's taking the law into their own hands and firing without word of command. From this moment, the advance is continued by echelons, though never more than two echelons should be employed and the fire

only continued long enough to cover the movement of the advancing echelon. The first support move up according to the judgment of the officers on the spot, but when once the zone of severe loss is entered, the lines in the rear close on the fighting line mechanically. Now comes in Scherff's principle to which we referred above. "Within the zone of heavy loss (say between 600 and 300 yards), no troops can stand their ground for more than five minutes, therefore the supporting line must never be at a greater distance from the fighting one, than it can cover inside of this five minutes, or say 500 yards.

From this moment the attack advances by a succession of waves; line after line is thrown into the struggle, which with each reinforcement gains ground some hundred yards or so to the front; when at last the limit at which decisive fire really commences, is reached, the fire is raised to its utmost intensity for a few moments, and then either obeying its own impulse or

the impetus of fresh troops from the rear, the whole rushes forward and clears the enemies' position to its further limit, when it throws itself down and pursues by fire only ; the duty of further advance being undertaken by a fresh body of troops, usually the reserve, if it has not itself been previously expended.

It will be seen that except in its being more scientifically put together, this German attack is practically, precisely similar to that employed by the Americans, with the sole difference that the breech-loader has conferred on the assailants the advantage of being able to make a more extended use of their weapons, and has reduced to a certain extent the disadvantage of having to halt. It has not compensated the defenders to the same extent, for by the use of entrenchments, it was always possible to them to increase the intensity of fire by placing a large number of successive ranks under cover. Thus in the case of the stone fence mentioned above, the confeder-

ates stood six deep, and their fire was therefore nearly as intense as that which could be delivered by a single rank with breech-loaders. Had we in 1871 been thoroughly well-informed as to the methods employed across the Atlantic, we should have seen at once that the new weapons did not necessarily entail any alteration in principle in our drill-book, and with a little alteration in detail, have attained at one bound to a point of efficiency not reached even in Germany till several years after the war. Instead of that, we allowed ourselves to be frightened, by the pamphlets of a number of junior officers, for the most part hastily written and based on imperfect information, into abolishing at one stroke all that was best in our traditions of the past, and substituting in its stead a something which was neither line nor skirmishing, the principal object of which appears to be to teach both our men and officers to shirk the losses inseparable from decisive action on the field of battle;

had an equivalent number of Americans, or of British infantry stood opposite the French at St. Privat on that fatal 18th of August, we believe they would have carried the place in line and at the first rush ; had even the Prussians omitted their fatal error of bringing heavy columns within reach of the breech - loader and attempting to manœuvre in them, they would have done so too, for the bulk of their losses fell on them before they extended, and the French fire was so wild that the nearer they got to them the safer they became. Our losses would have been serious, no doubt, but seeing that the Prussians only lost 30 per cent. in a fight which lasted from early evening till late into the night, it is not reasonable to suppose that, deducting the losses due to the mistake of the heavy columns, we could have lost even as high a percentage in an attack which at the outside should not have been under fire more than twenty minutes. For the garrison of St. Privat were not of a class to stand the

threat of cold steel. But the evil has been done, and will require a long time to undo, for 15 years the tactics of timidity have been dinned into our ears, and month after month our officers have been condemned to pass examinations in books compiled from others which have long since found a resting place in the dusty cellars of German publishers, and the doctrine of self-preservation as the first law has got such a grip of us, that it will require all the energy of a great leader to knock it out of us. It is not for want of telling, for our foreign visitors both here and at home have been good enough to point it out to us, but yet every year the drill grounds witness the same old farce, we were going to write, but in view of what it may mean to us in a not far distant future, the word tragedy seems to be nearer the mark. Napoleon's favourite saying was :—"Il faut casser des œufs pour faire des omelettes." Let us bear it in mind.

GERMAN OPINION ON THE DELHI MANŒUVRES.

A LECTURE on the lessons of the Delhi Camp of Exercise has been delivered by a German officer in Berlin. Thanks to the *Pioneer*, which has obtained a summary of the lecture: the officers of all arms in the service can now see themselves as others see them. The German critic says :—

First, with regard to the infantry. The men show considerable aptitude for skirmishing, and are excellent for all light infantry duties, but the officers, as a body, seem never to have properly appreciated the difference between an advance guard, skirmishing fight, and the decisive attack on a field of battle. The instructions for the attack were evidently drawn up by men entirely unacquainted with the European battle-fields of to-day. The attempt to avoid doubling up of different companies (*eindoublisen*) in the fighting line by mak-

ing each little company find its own support and reserve, is thoroughly impractical, for it would be impossible in actual warfare to ensure each little detachment coming up precisely in rear of the little section of the front to which it belongs ; it has the further defect of destroying, at the very commencement of the action, and unnecessarily, the Captain's control over his company. A man can command the extent of front required by the small English companies, but he cannot possibly keep in hand three separate bodies some 400 yards apart. As a consequence there is no unity of direction in the fighting line, and fire discipline is almost impossible to maintain.

“ Besides, the English authorities do not appear to realise the losses inseparable from a general action, and that to carry a front of some 800 to a 1,000 yards, it is necessary to put in a whole division. Battalions must be intermixed, before even a distance of 700 yards from the enemy has been reached, and by the time the zone of decision (about 300

yards) has been attained, whole regiments will be required. This danger can only be guarded against by accustoming the men in peace to act under the orders of the officer nearest to them, and on the part of the officers by re-dividing amongst themselves the commands as each fresh reinforcement comes into line. This is the universal practice in Germany at present. The advance is altogether too slow : the fact that losses increase in proportion to the length of time during which the target is exposed appears not to have occurred to them.”*

“ The advance of the fighting line by successive small fractions and by short rushes of 35 yards, we consider altogether impractical—the small fractions mask each other’s fire and the short rushes unnecessarily tire the men. Nor are these short rushes

* In the German attack, from the moment the signal for the advance is given, all troops in rear of the fighting line move off in quick time and never halt ; if the fighting line is checked, they close on it, and carry it on with them. The usual distance between successive lines is about 400 yards.

long enough to carry them out of the average cone of dispersion of the shots aimed at them, and it is easier for the defender to keep on them than it is where each range has to be re - estimated and the sights re-adjusted.

“ But most striking of all we consider to be the want of any true conception of the value of discipline in the fight. In camp and quarters the discipline of the English Army has always been very high, and formerly, when they fought in line, it was the admiration of all Europe. The writings of Generals Foy and Bugeaud, their defeated enemies, are well - known in all German schools, and our own countrymen, who fought shoulder-to-shoulder with them in 1815, agree in the same high testimony : yet it does not appear to have occurred to the modern school of English leaders that it was to this high discipline that they owed their successes, and that, if that degree of drill was necessary to ensure the success of an advance against smooth-bore muskets

whose fire was hardly effective at 200 yards, how much more, therefore, is it necessary, when the troops behind the fighting line have all to cross a fire-swept zone of some 1,500 yards in depth, without firing a shot in return. The innate love of fighting which may be expected in a volunteer army, and which none who have read the records of the Peninsular and Crimean wars and of their campaigns in India will deny them, renders an iron discipline all the more essential if the troops in rear are to be prevented from taking the law into their own hands and joining the fighting line without orders. This was exactly what the Prussian Guard Corps did at St. Privat.

“In Germany we look upon discipline as the main sheet anchor on which we rely to overcome man’s inherent fear of death and danger and tighten up its bands all the more when the critical moment arrives. In the English Army, on the contrary, exactly the reverse course is followed, and when the

attack commences all the outward forms of discipline are abandoned.

“Turning now to the cavalry. The material leaves nothing to be desired ; such men and such horses as the British Cavalry regiments in India have, are not to be seen in any other country in the world. The Englishman is a born rider, and sits his horse with an ease and confidence our men can rarely attain to. The Native Cavalry also ride well, and even their horses are quite up to the averages of our Hussar regiments. With such advantages, it is extraordinary that the cavalry is not better than it is. But here, again, the want of experience in handling large bodies of cavalry, the fatal fallacies which the breech-loader brought in its train, have all borne fruit. The general ideas on cavalry taught in the English schools and the strong prejudice against them existing in the minds of the Umpire Staff, who almost invariably order them out of action if they attack either infantry or guns, have acted most prejudicially on all con-

cerned. We ourselves knew what it was to suffer similarly—before the glorious day of Vionville, and can sympathise with our gallant comrades in arms ; but they labour also under the disadvantage of a defective system of drill and elementary training of men and horses. Absolute uniformity of time and pace are the very essentials of combined action in cavalry tactics ; but little attention is paid to either.

“ The independence of the squadron and the use of the squadron column are two other points ; but neither is as yet properly appreciated. Owing to the defective training of the young horses, and to the fact that the men are not taught to ride straight to their front (keeping their dressing by time and an occasional glance of the eye instead of by turning the head to the directing flank), the long advances in line are not well made, and the charge, though delivered at a high rate of speed, is wanting in cohesion, the files opening out and the ranks not being kept sufficiently distinct. The *mêlée* and pursuit

are not enough practised. Finally, the systematic training of the horses to cover long distances at speed has been hitherto ignored. Great inequality also exists between the different regiments, both of the Native and British Cavalry. It is almost impossible to compare the two ends of the scale in either case, and this re-acts very prejudicially on their employment in brigade.

“The Native Cavalry also suffer from the disadvantage of drawing their young officers largely from the ranks of the infantry, and who, having been trained for some years in the latter arm, fail to acquire that complete confidence in their new one which every cavalryman should have. Further, never having been grounded in the principles of military equitation, they do not possess the necessary routine knowledge, nor a sense of its important bearing on efficiency.

“The efficiency of artillery depends to such a large extent on accurate shooting that it is impossible to form an opinion of it in manœuvres. As with the other arms, the

men and horses are of the first class and their discipline good ; but want of experience in the handling of large masses on the part of superior officers is apparent, and they were, moreover, much hampered by the provisional instructions published for the guidance of the higher commands during the manœuvres. The principle that Artillery should not fire over Infantry shows an extraordinary inability to grasp the conditions of a modern battle and practically deprives the Infantry of the co-operation which is so essential to success. Even in a fight of one corps against another it would be impossible for the Artillery to prepare the attack from a position on its flank, because, taking 2,000 yards as the distance between the two fronts, the outer battery of the line would be some 4,000 yards distant from the point of attack, and where several corps are fighting alongside of each other, the idea is perfectly impracticable. It is a poor compliment to pay their Infantry to say they cannot stand what every other army

in Europe stands willingly enough. The truth is the different arms of the Service in the English Army are not sufficiently closely united : there is too much caste spirit, they fail to perceive that each only exists for the other, and that the efficiency of an army is measured by the product, not the sum, of the efficiency of each arm."

The above has been reprinted by permission, in order to serve as a contrast to an English officer's opinion on the German system of attack.

"One cannot make omelettes without breaking eggs, and no loss must be shirked to win a battle. All the petty dodges by which other armies strive to avoid the heavy losses which every attack must cost, and which usually defeat their own object, by either retarding the advance or by weakening the spirit of the troops themselves, are sternly rejected by the Germans. Their object is to win. There is a considerable reaction against the ideas published by so many writers after the war, that losses are to be avoided instead

of faced. Meckel, in his 'Taktik,' points out that the losses in the Seven Years' War were far heavier in proportion than those incurred in 1870 ; yet he says there is no record that after the battles of Zorndorf, Hochstädt, or Leuthen, the officers of Frederic's army employed their spare time in trying to discover systems by which battles might be fought without bloodshed. And as it was then, so it is now—great results can only be obtained with proportionate sacrifice. In fact, the bottom has been knocked out of all the universal nostrums for victory by practice and common-sense. Even out-flanking tactics are considerably discredited now, for it has been discovered that unless the enemy is altogether incapable of manœuvring, every flank attack must at last result in a local front attack, besides which, when troops are acting in large masses, each battalion is rigidly limited as to its front by the presence of the other bodies on either hand. Hence direct attacks must not be shirked, and it is only by the intelligent

co-operation of the artillery that the terrible sacrifices they entail can be reduced." This, indeed, seems to be the main difference between the German practice and that of other nations, notably our own. Of course, all systems refer to this co-operation, but where they fail for the most part is in the intelligence to work together properly. This is particularly the case in the English service. In reading the innumerable discussions and letters on the subject with which we are deluged by infantry officers, one notices the almost universal failure to appreciate properly the part played by the artillery. The tendency is to rely too exclusively on the infantry fire of the attack to render its approach possible, and this causes a slowness and drag to the advance which would probably entail double the loss, because the target is exposed for double the time. This loss is by no means compensated by the increased losses inflicted on the defender, for when once the advance by rushes across the zone of aimed

fire commences, the fire of the stationary defender from behind cover is relatively much more accurate than that of the assailant, exhausted and excited as the latter must be by the advance itself. The German idea is rather to take full advantage of the power of the artillery, supported, as far as possible, by infantry fire, and then to push rapidly on by rushes, only halting and firing enough to let the men get their wind, and to distract the enemy's attention by giving him a changing target, till they get so close that every rifle discharged horizontally should "bag" its man. After four or five minutes of concentrated fire, the main body comes up in line, and gives the impetus for the assault itself. But the Germans also recognise that against good infantry the shooting-line will not be able to reach this distance without frequent and strong reinforcement. Indeed, one often hears it said amongst the older officers—and, of course, sees it in print too—that within the zone of aimed fire, troops once halted can only be got to advance by

bringing up fresh troops into the fighting-line. We think, too, that though Von Scherff has many opponents in the service, the principle on which he bases the distances between supporting lines on the battle-field—*viz.*, “that no man can stand halted for five minutes in effective range of the breech-loader, and hence that fresh support must be at hand to reinforce before that five minutes is over”—meets with very general acceptance. The rapidity with which an attack conducted on these ideas comes on, is scarcely credible, and when one stands on the defenders’ side and sees behind the fighting-line, line upon line of support all pressing forward at the same steady pace—for, from the moment the attack proper is begun, the main body and troops behind never interrupt their advance, but come on “in parade order,” with bands playing, colours flying, and the strictest attention to dressing, &c.,—the moral effect is not to be mistaken. The actual time occupied, assuming the advance to commence at 700 yards from the enemy,

may usually be estimated at from twelve to fifteen minutes. The advance of the Guards' Brigade at the last Queen's review at Aldershot took about half-an-hour, and was then 300 yards distant from the object of the attack. As regards fire discipline :—During the period of preparation before the advance by rushes begins, the units of a German battalion are practically intact in the hands of their own officers, and volleys, fire pauses, &c., can all be controlled. Once the advance begins, independent firing can alone be relied on. The intermixture of the companies, &c., which we seek to avoid by the ingenious but impracticable scheme of Colonel Macdonald, the Germans grasp boldly. It is, after all, a peace-time difficulty only. It is annoying in peace, certainly, to see one's company taken out of one's hands by the senior Captain coming up with his fresh one from behind ; but in war-time it is extremely unlikely that both Captains would be still unhurt at this period of the action. It is

utterly unavoidable to prevent the mixture of regiments, sometimes even of brigades, in a general action, and the only way to minimise the evil is to adopt the system in use in Germany, of dividing up the fighting-line into fresh commands as reinforcements come up, and thus accustoming officers and non-commissioned officers to rapidly assume command of the men nearest to them. A step in advance, and a practical one, would be for the battalion commander to fall-out officers from time to time during the progress of the attack to mark the casualties. It is only the same principle as gun-drill with reduced detachments. As far as the mere form of attack-drill goes, there is but little to choose between those one sees in Germany and the one in our own field exercises ; but the point in which the Germans have a real superiority over us is the spirit in which the form is interpreted. Put in the briefest way, the spirit amounts to this. There are two dangers against which the attack has to contend,—the first is numerical loss ; the

second, the weakening of the resolution of the men entailed by the first. The former can only be reduced by intelligent co-operation between the artillery and infantry in the preparatory stage, and by rapidity of movement when once the execution begins. But against the latter, only the discipline and training of the troops can guard. Men must be trained to face, not to shirk losses ; troops taught to be over-cautious in the attack—like the Austrians, French, and our own—are already more than half-beaten before the action begins, so the Germans say. Here, indeed, is something worth copying, and something which would add immeasurably more to our efficiency than all the brown belts, spiked helmets, &c., with which our tailors' bills have been increased and our tempers upset during the last twenty years. Let us have some settled system of musketry instruction and tactics, and cease to harass officers and men by a never-ending fire of circulars from the Adjutant - General's

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office. Let us learn to regard the art of war from as practical a point of view as possible, and leave trifles such as buttons and lace to be looked after by trifling minds.

THE SPIRIT OF THE RUSSIAN ARMY.

“THE letter killeth, the spirit giveth life,” is as true a saying when applied to military as to spiritual matters. Only those who have learnt by experience, can realise to what an extent the most profound study of official forms and statistics can mislead a man in his estimate of the fighting value of a foreign army, and in none is this more the case than in the Russian army. From a paper point of view, the impression conveyed is undoubtedly highly favourable; organisation and tactics are all founded on the latest and most approved principles, copied, in fact, generally from those of the German army; and materials for forming this opinion are abundant enough.

But a study of the spirit reveals a totally different state of things, and owing to the

lethargy of our Intelligence Department, the materials available are both scanty and inaccurate.

Yet it is of infinitely greater consequence that our Staff and regimental officers should be imbued with a knowledge of the morale of the army, which they are most likely to be engaged with, than that they should have at their finger ends the masses of figures and forms with which our books are flooded ; and it is our object to supply, as far as possible, this admitted want. But at the outset one is met with the difficulty presented by the enormous area of the Russian Empire, and the different characteristics of its inhabitants. Practically we may disregard the idiosyncrasies of the inhabitants of Nova Zembla and other remote parts, and confine ourselves to those troops most likely to be opposed to us in India.

From the map of the distribution of the army of Russia in peace, it appears most likely that these will be drawn chiefly from

the central provinces of Russia, *i.e.*, from around Moscow and Nijni Novgorod, both because she would hardly dare to denude her western frontiers of troops ; and also because her best line of communications lies by the Petersburg-Orenburg Railway and down the Volga, from thence across the Caspian in Nobel's new petroleum fleet to Tchekislar, the northern terminus of the railway to Askabad. Even in 1854, when she was assured of the benevolent neutrality of both Prussia and Austria, it was considered dangerous to move troops from those frontiers for the Crimea ; and now, when for the former a united Germany has been substituted, burning with hatred against her, when, in fact, it is openly said in the German army that the maintenance of peace depends almost altogether on the life of one man, it is not probable that she will care to risk more than she did on the former occasion. The army of the Caucasus is also not likely to be available for operations against Indian troops, as they will probably find occupa-

tion enough looking after the Turks, supported, let us hope, by English battalions and money.

Throughout the central provinces of Russia, owing to the similarity of the country, climate, and occupation of the inhabitants, there is a singular uniformity in their character. The difference in intelligence between the town and countryman is probably less than in any other kingdom in Europe, and the country-people form five-sixths of the total population ; hence the proportion of townsmen in a line battalion is less than in any other army ; but it is the townsman who, by his greater intelligence, adopts the characteristics of modern fighting most readily. The Russian "Moujik," with his dull half-animal organisation, has been sufficiently often described ; but the bearing of his idiosyncrasies on military matters has not been sufficiently taken into account. Perfect discipline, coupled with a high degree of individual initiative in all ranks, are, it will

be admitted, the two most essential factors of success on the battle-field ; but though in the former requisite the Russian army is well found, in the latter it is almost entirely deficient. Probably in no army in the world are the men less fitted to fight in extended order. Their sheep-like tendency to run into flocks when under fire, has been noted by every author who has written of them, and it appears just as strongly in the accounts of the Seven Years' War as in those of the Crimea and Bulgaria. In no other language can we find a saying analogous to this :—"It is pleasanter to die in company, and old mother Russia has sons enough." Rather a contrast to the "Come on, Bill : blowed if there ain't thousands of them," of the escaped guard-room prisoner to his chum as they were running out on the morning of Inkerman to have "a pot at the Russians." Huddled together, they have stood over and over again to be shot down, till at last the instinct of self-preservation has seized the

whole mass, and they have turned and run in perfect panic. When they did run in Turkey, every conceivable impediment to their progress was recklessly thrown aside, and not only arms and accoutrements, but even their paper roubles, which could not have weighed much, were cast aside. But it is said that during the latter portion of the war, those battalions which had provided themselves with entrenching tools, sacrificed everything else, but stuck to their shovels.

Panic, however, has not often seized them, and on many occasions they have borne almost incredible losses without giving way,—witness the battles of Zorn-dorf, Friedland, Borodino, and the storming of Ismail. Further, it must be remembered that this very stolidity renders them peculiarly susceptible to the mesmerism of a real leader, such as Souvaroff or Skobelev. Probably no troops could have been rallied and brought on again and again over the same ground, in the way the latter suc-

ceeded in doing against the Green Hill redoubts at Plevna. And again, though the absence of intelligence makes it particularly difficult to teach them musketry as a fine art, it renders them less liable to give way to the tendency so fatal in the Latin races to fire fast and without aiming.

And what of the officers who command these men? Socially these have changed very much since the days of the Crimea. The enormous numerical increase in the army, together with the almost complete ruin which has overtaken the landed proprietors since the emancipation of the serfs, has rendered it utterly impossible to obtain a sufficient supply of educated gentlemen to fill these positions. Of course in the picked regiments of the Guard, or in those divisions brought together for the Emperor's inspections at Tsarkoe-Selo, men as good as in any other army are to be met with; but in the distant garrisons, life is so wearisome and monotonous, that very soon what little education they ever had is

forgotten, and they relapse into a state of semi-somnolence, modified by *vodka*. Those amongst them who think—horrified and disgusted by the things they see around them, and particularly by the police duties they have to perform, — inevitably become Nihilists; and frequently both active and dangerous ones. Hence there arises in regiments a feeling of distrust and suspicion, which condemns each to almost perpetual solitude. Let us see what a well-known German authority (Sarmaticus) says of them in describing Warsaw: “Numbers of officers in uniform are seen in the streets, but they are the very opposite of those we are accustomed to in our own towns. Russia is no soil for the growth of those smart young soldiers of the Unter den Linden type. Here there is none of that careless half swaggering manner, willingly forgiven, because we know that behind it there is breeding and honour not unmingled with heroism. The Russian officer is, as far as concerns his exterior, the very personi-

fication of monotony and heaviness—for he is never seen except wrapped in his grey Russian overcoat of coarse thick cloth which gives ungainliness to every figure. The coat has to protect the wearer, both against the cold of winter and the burning heat of summer. This simplicity may have something practical to recommend it, but a stranger can hardly conceal his astonishment, when he is himself clad in the lightest possible garments at seeing these heavily cloaked figures wandering about with the thermometer at 80° in the shade. The Russian officer is further characterised by his unsociable, generally solitary appearance. One seldom sees a group of them ; never one made up of the different arms, or commands. They take no notice of each other. The mutual salute is unknown to them. Society takes no notice of them, particularly in Warsaw. When they enter public rooms, such as cafes, etc., no special places are reserved for them ; but they slink shyly into a corner, as if wishing to escape

observation ;” and more to the same effect. It is a pity that we have not a description of the English officer by the same author, in order to make a comparison ; but the usual opinion in Germany of the Englishman as a leader is very favourable, not to say flattering ; and there is no reason to suppose that this author would have regarded us less favourably than the others. So far, therefore, as the individual quality of officers and men alike, in the Russian army is concerned, we would seem to have much better ground than mere patriotism for asserting that the English soldier is distinctly superior. Nor have we any ground for supposing that our troops, in steadiness and discipline in mass, are inferior to any of the world. Granting these two premises, the conclusion that whenever, in a hard-fought campaign, it should be our lot to meet the Russians on anything like equal terms, we should be victorious, does not seem open to doubt.

RUSSIAN INFANTRY TACTICS.

IN continuation of our previous article on this subject, the following notes from General Dragomirow's writings will not be without interest, and will enable the reader to form some idea of the ruling tendency in Russian tactics. We must begin by stating, that, though the General writes very forcibly, yet he is continually preaching the necessity of moderation in all things ; shooting must not be sacrificed to discipline, nor discipline be allowed to hamper the dash and spirit of an attack ; but that the proper balance should throughout be maintained. It must be borne in mind, too, that he is writing, for Russians, and not for Englishmen. He is writing, that is to say, for troops that are second to none in the world for stolidity in the mass ; but whose powers of individual action, having been always suppressed in training, are probably less than those of any other soldiers of Europe.

General Dragomirow begins by stating the obvious, but frequently forgotten fact, that the soldier must be taught in peace, only that which will be of use to him in war ; before the enemy a man does not think logically, but only does what he has learnt to do. To counteract the tendency to purely mechanical obedience, inculcated in close order drill, great stress must be laid on his mental or moral training ; he must be taught to think logically and carry his conclusions out rapidly ; the feeling of responsibility should also be developed ; “garrison duty and guard-mounting are the best means for those ends.” The endurance of the soldier should be cultivated by gymnastics (but not too much of them), and by always drilling and marching in full marching order ; Suvarow’s maxim should never be forgotten, “light at drill, heavy on the march ; heavy at drill, light on the march.” With regard to shooting, he says—“If too much weight is given to good shooting, we get a man who shoots

more or less well at long ranges, but who is not particularly anxious to go in with the bayonet : and eventually too much importance comes to be attached to the use of the ground as cover."

The General disapproves altogether of teaching men to take advantage of the ground as cover. He is of opinion that it destroys the dash of the men, and is, moreover, a waste of time, "as every five-year old child can play at hide and seek." The expression of these views in this uncompromising manner, drew down on him the pens of General Todleben, Seddeler, Kouropatkine and Kaulbars, but their voices have been raised in vain, and the idea that it is deleterious to insist too much on the use of cover in the attack, has gained ground both in Russia and Germany. These two countries, it must be remembered, have both recently emerged from a victorious war, and have both enormous armies. Hence it is not unnatural that they should favour a form of attack which brings the greatest

possible force to bear on the position to be taken in the shortest possible time.

With regard to the use of the bayonet and charges in close order, Dragomirow speaks up very warmly. In 1876, writing in answer to a pamphlet by a General Skugarewiski, proposing a wholesale copy of the ideas of Boguslawski, Wedmar and other Prussian authors, he said, "if many Prussian writers maintain that it is impossible to keep up close order formations under the Infantry fire of to-day, then from their point of view, it is quite consistent—for to confess its possibility, and yet to admit that they themselves failed to do so, is more than one can expect from human nature ; but victory crowned their efforts, consequently they are all heroes ; and what heroes failed to do, nobody else can succeed in doing."

It is a pity some of our own authorities did not take the same view of the matter, for the above-mentioned Prussian authors only stated their private views, which were

deduced entirely from their personal experience as company leaders, and never received the sanction of the superior commands. In fact, the chief of the General Staff, Colonel Bronsart von Schellendorf was authorised to write a reply on the subject, the gist of which was, that though the fighting line no longer could work in close order, yet all the successive lines behind it must do so, and that, to carry a position by assault, such a mass of men must be brought to bear on it, that the fighting line becomes a close order formation in all but name, and these continue to be the guiding ideas in Germany to this day. Quite recently we ourselves saw the final assault delivered by a line of men ten deep and 1,000 yards of front.

On the subject of entrenchments and instruction in their formation during peace, the opinions of the General will be, no doubt, most acceptable to the hard-worked British subaltern if to nobody else. "What is the good," he writes, "of throwing up entrenchments which nobody is going to

attack." To the objection, that without this training, men and officers would remain unacquainted with the form and trace of the works, he replies "what does that matter? Are there not specialists available for superintendence, and, besides, in most minds the knowledge of these forms and rules only destroys the sound common sense view of the matter." One cannot help wondering, however, what Skobelev's men on the green hills before Plevna would have said on this subject, when, having carried the Turkish redoubts overnight on that famous 27th of August, neither specialists nor tools were to be found, and they laboured with bare hands, swords, bayonets, and canteens to get some sort of cover against the hailstorm of Turkish bullets. But the opposition of Todleben and others have in this case proved too strong, and the Russians are now all supplied with portable shovels and practised in their use.

To field firing he attaches great importance, both on account of the practice it

gives to the men in shooting, and also because it shews what formations for attack are useful, and what are not. Complicated forms disappear, and the constant craving for innovations with them. The commanders learn to command from the position they would actually have to occupy in war; and the men become accustomed to this method of leading. Every one's attention being directed on the target, there is none to spare for such trifles as faultless dressing, etc. ;" and further on he proposes that trenches or cover should be constructed in which troops should be stationed during the fire, to accustom them to the sound of the bullets flying over head. This is practical with a vengeance, but he has been outdone in this direction by a Prussian General of distinction, who, some ten years ago, proposed in all seriousness that on one day in each of the manœuvres, ball cartridges, in the proportion of one to ten blank ones, should be issued to the troops.

RUSSIAN MOUNTED INFANTRY.

WRITING of the Russian Army, we have already pointed out how wide the distinction is in that service, between the letter of their regulations and the spirit in which these are interpreted. Some observations made by Colonel Baikov, of the Russian General Staff, in a pamphlet published recently, will serve to throw further light on this distinction ; and coming from the pen of a Russian officer, will be free from any suspicion of national prejudice.

The most recent Russian regulation for the instruction of Cavalry in dismounted duties, dated 1884, lays down clearly that the charge (mounted) is the prime *raison d'être* of Cavalry, and that a dismounted combat is only to be undertaken when the nature of the ground and circumstances render its adoption the only plan by which the mission of Cavalry can be fulfilled. This

principle, interpreted liberally, as it would be in a country where the nature and duties of Cavalry are well understood, would leave nothing to be desired ; but, according to the Russian Colonel, the true character of the arm is so little understood, that the slightest inequality of the ground, or the existence of anything which can be made out to be "unfavourable circumstances," causes the Cavalry at once to draw rein and have recourse to their carbines.

We must point out that Colonel Baikov himself belongs by no means to the advanced German school of Cavalry tacticians. His writings nowhere imply a belief in the power of Cavalry to decide a general action by its use in masses ; and hence his remarks on the utter want of dash and confidence displayed by his countrymen, deserve greater attention than, perhaps, they would otherwise be entitled to. Thus, writing of the German Cavalry divisions in 1870, he roundly asserts that they proved themselves helpless even against the In-

fantry of the Gard Mobile, which was far from being the case. In the advance on Sedan, when the Imperial army was still in existence, on more than one occasion the German Hussars, finding themselves opposed by Infantry in villages, deliberately dismounted, and having no firearms, stormed and carried these villages with the sword ; and in the campaigns on the Loire, where the wooded nature of the ground prevented their getting at the enemy, they successfully manœuvred him out into the open, and then charged and destroyed him. In more than one regimental history may the account of such an action be read with the ominous words after it—"no prisoners were taken."

But Colonel Baikov's views were generally accepted in his country, and the Russian Cavalry started for the Balkans, holding, as an axiom, "that, in the face of the breech-loader, Cavalry is helpless:" ignoring the truth of the maxim so steadfastly held by Souvaroff—"the arm itself

is nothing, it is the man who stands behind it ; " a principle, by the way, that we, of all nations, should take most to heart.

Starting with this fixed idea, it was only natural that the record of the Russian horse during this campaign should be one of continual failure : and it is equally natural that, from such a failure, additional arguments in favour of this mistaken notion should be drawn. With regard to this, let us quote the Colonel's own words—" masses of magnificent (?) Cavalry, sent to complete the blockade of Plevna, did not even succeed in stopping the march of the convoys ; they only retarded it."

Here is another characteristic illustration: " A reconnoissance, composed of picked men, all good shots, was despatched against the enemy's rear, in command of an officer noted for his audacity. Starting in the evening, after a short march, it dismounted and sent back its horses ; then, after having marched about three miles, it met with a party of armed villagers, and

giving up its mission, it returned to its quarters, firmly convinced that it had done all that it ought to have done."

Since the war, matters have not improved. It has become, in fact, quite the exception in the manœuvres to see two bodies of Cavalry charge. The regulations themselves are much to blame for this state of things ; for though, as above-mentioned, they recognised the importance of the charge, so little attention has been paid to the proper meaning of the terms used, that "a too literal interpretation may be made of them, particularly by men whose minds are void of all critical sense, little accustomed to serious study, and possessing only a trace of historical knowledge of their arm." This last sentence, by the way, throws a good deal of light on the average capacity of the Russian officer.

The guiding idea, in fact, of these instructions, is that a dismounted Cavalry man becomes, *ipso facto*, an Infantry man, and is expected to attack in the same

manner, and to hold his own with the same determination. According to Colonel Baikov, this is utterly impracticable ; and the attempt to make them do this can only lead to an unnecessary waste of men and horses. In the defence of a position against Infantry to the last, the complete destruction of the led horses becomes a matter of certainty. Our authority is himself of opinion that the action should be broken off before the enemy comes within some 300 paces of the line. In fact, he wishes to see Cavalry employed on the defensive, only as a feint, to induce a premature deployment of the enemy's forces, but not to wait and become seriously engaged.

As to mounted Infantry attacking Infantry proper, Colonel Baikov points out the extreme extravagance in material entailed by such a course. A whole mounted Infantry division can hardly put in line as many rifles as a couple of battalions ; and in executing an attack, must be prepared to lose at least thirty per cent.

of their strength, even if successful. But to employ a whole division of mounted men to destroy a couple of battalions only, is hardly an economical method of making war. It may be stated, in conclusion, that Colonel Baikov's views on the dismounted action of Cavalry are practically identical with those held by the leading German authorities, and derive their chief importance for us from the side-lights they throw on the interior condition of the Russian Army. From this point of view, they deserve the attentive study of all English officers.

THE RUSSIAN COMMISSARIAT.

IN the event of war in the coming Spring, the most serious difficulty with which the Russian Army will have to contend, will not be the enemy in its front, but its own Commissariat in rear. The supply of troops in war is based, in Russia, on a system of contracts, which are given out to large firms, to deliver food, clothing, etc., at the terminal stations of the lines of supply, where the goods are inspected and passed by the Intendance, and forwarded to the front. In all times and places, Army contractors have enjoyed a more or less unenviable reputation. Even in our own comparatively uncorrupt service, there have been rumours, the reverse of flattering to this class, as regards their honesty. The Committee of Enquiry appointed, after the Egyptian war of 1883, and generally known as Dr. Cameron's Committee, disclosed some extremely awkward facts ; but

even the greatest American adept in the Civil War must confess himself outdone before the evidence brought out by the enquiries in Russia after the campaign against Turkey. At its commencement, the Russian papers were jubilant over the progress the army had made since the Crimea ; but news from the theatre of war very soon made it evident, that the progress of the supply departments had certainly been great, but entirely in the wrong direction. A Petersburg journal published early in the campaign, the following complaint :—“ ‘ We are dying of famine ’ is the cry of the whole army ; ‘ the preserved meat distributed to us is in such an advanced state of decomposition, that not only is it unfit for food ; but to avoid an epidemic, we have been compelled to bury tons of it.’ ”

That this was no growl of professional grumblers, such as exist in every service, is proved by the following extract from the official report of a Committee composed of

the Professors of the University of Kieff, assembled to report on some army biscuit. "Out of 100 parts of this biscuit, we have found that 30 parts consist of ingredients devoid of nutrition, such as corn-husks, straw, sand and dirt. The water employed in their manufacture was, properly speaking, not water at all, but a reddish brown fluid, resembling cocoa in appearance, and swarming with living organisms, which, by keeping it in incessant movement, prevented the deposit of inorganic matter. The manufactory where these biscuits were produced, was low and damp; and from motives of economy, the kilns in which they were dried, were only raised to a temperature of 70° C. instead of 120° C.—the minimum necessary to destroy such germs. The consequence has been, that each of the biscuits has become a hot-bed for the propagation of these bacteria, which have spread to the outside, and formed a coating of greenish brown mould."

The Commission absolutely declined to

experiment with these articles of so-called food on dogs, still less on human beings. But thousands of tons of these same biscuits were issued to the armies ; who, having nothing else, were compelled to eat them or starve. The other articles supplied to the army were no better. Their clothing was shoddy, and their shoe-soles brown paper ; but in that respect they were probably no worse off than our own men in the Crimea.

We could fill page after page with extracts of the same character from Russian papers ; and if we take into account the rigour of the Russian Press censorship, we may be sure that only a tithe of the total ever saw the light. For a proof of their truth, we have only to look at the epidemic of disease that fell on the army after the treaty of San Stephano. Of course the filthy habits of the Russian soldiers had much to say to the outbreak of disease, but hardships and privation unquestionably aggravated the evil. The cause of all this

is directly traceable to the corruption which pervades every grade of Russian Society. If ever the Russians get India, the Bengali Baboo will have met his match ; and what between *backshish* and the unpronounceable Russian equivalent, this country will be anything but an earthly paradise. The contractor has to bribe at both ends ; first, the heads of departments to get his tender accepted, and next the officers who pass the goods on delivery. The amount of the former class of bribes is almost incredible. Thus in one of the numerous enquiries held after the war, it appeared that a contractor, named Rykoff—besides paying several hundred thousand roubles to various dignitaries in St. Petersburg—had to give one million to a General Bernard (not a Russian name by the way) in order to get his tenders passed ; and at the beginning of the campaign it was rumoured all over the town, that a Mademoiselle Tchisloon, an actress, had received a present of one million, in ex-

change for her influence with the Grand Duke Nicholas the elder, from the firm of Gorvitz and Kohan, one of the most notorious of the gang of fraudulent contractors. In the above-mentioned enquiry into the case of Rykoff, who was also the director of a bank, it was shewn that the deposits in this bank increased enormously during the year 1877 ; and that the greater portion of these came from the officers of the Intendence at the theatre of war.

Nevertheless, it does not appear to be the fault of any one set of individuals, that this state of things exists. It is rather due to the universal corruption of the whole race. Even well wishers of their country such as Stepniak, admit as much. In his extremely interesting work, *Le Tsar et Tsarismor*, he gives sketches of individuals, who, from time to time, have striven to fight against the tide, but who, as usual, were swept down by it. Thus a great contractor said at the close of the war :—
“ I assure you, it would not only be more

agreeable to us, but even more profitable, to supply good articles, than to squander our money in bribery, to secure our contracts. But what can we do ; for the Commandants and receivers insist on being bribed to pass our goods, whatever their quality."

Stepniak concludes his exposition of the mischief in these words :—" I leave it to the reader to decide which are the most to blame, the contractors, speculators by profession, or the Generals, Colonels, etc., to whom the State has entrusted its honor, and who are responsible for the lives and welfare of their men." It is not an army supplied on these principles which will cross the desert from Herat to Candahar.

THE AUSTRIAN INFANTRY.

AT the present moment, when there is still every reasonable prospect of a collision between the Austrians and Russians taking place, the following remarks on the Austrian Infantry may not be altogether without interest.

As in the case of other armies, a mere study of the drill book enables us to form but an imperfect idea of the tactical efficiency of an army : that depends entirely in the spirit in which the instructions in the book are carried out. Looked at from the German point of view, the Austrian Infantry *Field Exercise* leaves little to be desired, though it may perhaps be considered to be too much a handbook of tactics instead of a drill book ; but the method in which the evolutions contained in it are executed on the manœuvre ground shows that, to this day, the demoralisation caused by the Prussian breech-loading fire in 1866, has not yet run its course.

It will be in the memory of most of our readers how, after 1859, the Austrians abandoned all their time-honoured traditions and hastily copied the French system of bayonet attack, from which they had suffered so severely, only to meet a second and worse series of disasters from the steady aimed fire of the Prussians, whose strength lay, then, as it does now, more in the excellence of their fire discipline than in the perfection of their armament ; and since 1866 the Austrians have fallen into the same error, only in the opposite direction. Instead of recognising the truth of that fundamental axiom of German tactics, that steady Infantry are unassailable in their front and that, therefore, to be attacked successfully they must be made into unsteady Infantry first (a task which can only be performed by the concentrated fire of Artillery, which, if sufficiently powerful and long continued, will reduce the steadiest of Infantry to any degree of unsteadiness desired), they have given up, to a great extent,

their offensive tendency, and gone in for entrenchment combined with offensive returns, undertaken by special reserves. In fact, there is a strong tendency to that most attractive but dangerous method of the offensive-defensive—feasible enough with such men and the comparatively limited numbers. Wellington was accustomed to command, but, with the vast armies of conscript boys armed with breech-loaders, whose mere noise creates a difficulty in leading unknown in former days, the most dangerous trap into which a modern leader can fall.

To say a word against hasty entrenchments at the present moment will be considered heresy, perhaps, after the experiences of the Turkish war; but though in that campaign they no doubt enabled the Turks successfully to resist being beaten by their adversaries, only on one occasion did they enable the former to beat the latter, and the qualities of the individual Turkish soldier, together with the small numbers on that day and the personal

influence Baker Pasha exerted over his men, will account for this solitary successful deviation from the rule. The indifferent success achieved by the French in 1870, by the same method, might well have attracted the notice of the authorities, but unfortunately it did nothing of the sort ; the chief deduction they drew from this campaign was that the use of entrenchments materially reduced the French losses, and not that it did not prevent them being beaten, which appears to us to be the important point in the matter. It is true they have managed to avoid the pitfall into which the unfortunate French fell, namely, the system of local counter-attacks made with the bayonet and direct to the front. The idea here was, that the losses inflicted on the assailants in his advance (losses which, thanks to the shelter-trench the defender did not share) would perform the same part as that performed by the Artillery in the stage of preparation ; but, unfortunately for them, losses inflicted on

advancing troops are not as severely felt as those inflicted on stationary ones, and hence these counter-attacks, though the Prussian official bears testimony to the great gallantry with which they were made, were invariably beaten off with such loss that, when the retreating force reached its previous position, it could not be halted, and the trench fell into the hands of the pursuing Prussians. This fault, as we say, the Austrians have avoided, the regulation laying particular emphasis on the use of fire only, both in defence and in the pursuit of the enemy.

But it is in the attack itself that their chief weakness shows itself. Instead of relying on the Artillery to reduce the enemy to the requisite degree of unsteadiness (as we pointed out above), they sought to find shelter from the enemy's bullets in the nature of the ground, and to approach the enemy by showing as small a target as possible: in fact, to have recourse to skirmishing, instead of attacking. Of course

we do not mean to imply that skirmishing is not a very excellent thing in its proper place, but we submit that the decision of a great battle has not and never will be decided by skirmishes. Setting aside the fact that it is rarely possible to choose the ground over which one must attack (that, generally, depending on larger strategic considerations and the fact that when 200,000 or 300,000 men stand facing each other, each battalion is limited in its choice of ground to the strip immediately in its front), the practice of teaching men to run forward in a crouching doubled-up position singly or by twos and threes, to rally on a spot of cover or roll in the ground in front, all tend to delay the rapidity of the advance and to inspire an exaggerated fear of the enemy's bullets in the men. Now, since no attack should be commenced until the enemy is too shaken to deliver a steady aimed fire, it follows that the longer one is exposed to the unaimed fire, the more likely one is to get hit. Obviously a man

gets more thoroughly wet by exposure to half-an-hour's steady rain than by two minutes only of it. The moral effect of it can only be most depressing. To see, even in peace time, half-a-dozen men trying to get behind a single shrub that would not have stopped a charge of shot, and not to see any officer checking them for so doing, is not calculated to give one a high idea of the offensive value of such troops. Again, to see a company moving up to a roll of the ground some 30 yards in their front, by groups of twos and threes creeping up to it, and taking perhaps 10 minutes before the whole movement was completed, is scarcely more satisfactory ; yet that may be seen morning after morning going on in the fields near the Prater in Vienna. We had long looked upon our own attack as the slowest in the universe, but we are glad to be able to state that the Austrian attacks are slower, and it may well be doubted whether such an excess of caution is necessary even against breech-loaders.

The heaviest percentage of loss suffered by a single regiment or battalion which we know of, in breech-loading days, was that of the "Garde Schützen Bataillon" at St. Privat—about 60 per cent. in the whole action; and if we assume that 5-6th of that loss was actually suffered before their advance was stopped (it could hardly have been more), still it only amounted to 50 per cent. in one regiment in one day. Now, as we pointed out in a previous letter, in the Seven Years' War, on more than one occasion both sides lost almost 50 per cent. and in the case of Hochkirch, at least, neither side ran, but simply mutually left off fighting out of sheer weariness. Then it is on record that a single volley from steady troops armed with the Brown Bess, and both from British and German troops has stretched between 60 and 70 per cent. of the attacking force dead in their tracks. Surely this sudden loss is considerably more striking and demoralising than 50 per cent. in thirty minutes; and yet, to quote Meckel again:—"We

do not hear that Frederic's officers spent their winter evenings in discussing papers on how to avoid the recent heavy losses experienced in the past campaigns."

Now, it must be remembered that the spirit of the Russian Army is at present even more markedly offensive than even in the Prussian Army: for the past few years, indeed, there seems to have been almost a crusade in favour of Suvaroff's views and the bayonet. Some writers have gone even so far as to advocate no firing whatever in the attack, on the ground that it only delays the advance. They are, in fact, reasoning too exclusively from their own experience, just as the Austrians have done in the other direction from theirs. The Russians were exposed to the unaimed rain of Turkish bullets, and naturally found that the longer they stayed out in it, the wetter they got. The Austrians suffered from aimed fire, and hence seek to diminish the area of the target; and as the Prussians never went in for long range fire, the time-

of-exposure view of the question has not struck them in the same way : in connection with this, we may note the similar difference between the French and German tactics. Were the fight to be between the two Infantries only, we should be inclined to back the Russians heavily ; but, fortunately there are yet two other arms to be taken into account, *viz.*, the Cavalry and Artillery ; and as far as our information goes, the Russians are far behind the Austrians in their knowledge of how to manœuvre either the one or the other on the battle-field. If they attempt these offensive tactics against troops possessing the degree of discipline, and musketry instruction the Austrians certainly possess without adequate support from their Artillery, they are assuredly doomed to failure. They succeeded only against the Turks (and that by no means always), because the latter had somewhat hazy ideas as to the object of the sights on their rifles, most of them believing with the British sailor in the Crimea, who

being asked by his comrade : " What shall I gie 'im, Bill ?" replied : " Gie 'im the whole blooming ladder, Jim"—evidently supposing that the action of raising the sights increased the muzzle velocity of the bullet.

With reference to the Cavalry, it is true the Austrians can no longer boast of being the best in Europe as they could in 1859 : that boast belongs now to the Prussians, *pace* Sir Charles Dilke ; but they are far from being mere Mounted Infantrymen, and hence there is every probability that the Austrians Staff will always be better informed than their opponents ; for, to gain information, it is necessary not merely to screen your own side, but to pierce the veil of the other. Now, though the defensive power of Mounted Infantry is great, their offensive power against Cavalry is small, for to attack they must dismount, and thereby their rapidity of moving is at once reduced to the rate of ordinary Infantry. In fairly open ground the result of an

engagement in which the Mounted Infantry dismount must in the end inevitably be that they will be driven at last into a hollow square with their led horses in the middle, when the whole will form an easy prey to the Horse Artillery on the side of the Cavalry. Their own Horse Artillery is tied to their skirts, for it evidently cannot risk itself far away from its dismounted escort. Obviously if the Infantry mount they are at the mercy of the trained horsemen. The immense superiority of the Austrians, and particularly of the Hungarians, over the Russians as a race of Horsemen, together with the far superior level of intelligence in their ranks and amongst their officers, must also be taken into account. It requires more than patriotism and religious enthusiasm to make an efficient Cavalry scout, and a very elementary acquaintance with the recent history of the Russian Cavalry will suffice to prove the truth of this statement.

Finally, reverting to the Infantry, we

have still to notice that, in spite of their not going in for the same degree of precision and rigid steadiness under arms that characterises the Germans, their movements in close order are executed with great rapidity and a sufficient degree of accuracy. The Prussians maintain that nothing but discipline founded on drill will stand the strain of actual service ; the Austrians look more to military education, and there has been a hot fight between the partisans of the two systems in their respective military publications. Though we entirely agree with the Germans, yet we must confess to having been agreeably surprised by the drill of the Austrians. Their alignments were always taken up with precision and rapidity in spite of the absence of markers ; and when they doubled they really got over the ground—which is not always the case. Were it not for the absence of energy and go in the attack, we should be inclined to back them at long odds in the coming struggle ; and though

on paper numbers appear heavily against them if pitted against Russia single-handed, yet we believe that in the field the proverbial corruption and peculation in the supply departments of the latter will make her strength far less formidable than it appears to be.

TACTICS IN INDIA.

JUDGING by the tactics practised by the British Army on Indian parade grounds, there appears to be an idea in the minds of our Military authorities that one and the same form is equally applicable to all the various conditions with which we may have to contend. But a little reflection will show that this is very far from being the case. To cut your coat according to your cloth, or, in other words, to adapt your means to your end, is as necessary a rule in tactics as in any other undertaking ; and the attempt to make one form of attack fit all cases, and that form, too, one of which extended order is the basis, shows that the conditions we shall have to encounter in this country have neither been studied nor understood. It seems to have been forgotten that formations in extended order are not in themselves the strongest form, but have been

rendered compulsory in European armies by the universal adoption of breech-loaders, whose fire, in the hands of really trained troops, renders any other method impossible.

Again tactics depend in a great measure on the ground, and it by no means follows that a system which has given good results in the undulating country in which the last three great campaigns in Europe have been fought out will give equally good results in the level plains of India. For instance, long range fire from a commanding position, from which the strike of the bullets (or shells) can be readily observed, will give very different results over a dead level plain covered with scrub and brushwood. Fighting across a rolling valley some 2,000 yards or more across, every body of troops must be seen as it advances down the slope ; hence the point on which the brunt of the attack will fall can be recognised and reinforced by troops at least equally distant. But standing on the level,

unless a convenient mirage happens to throw the ground up, the advance of the first line (*i.e.*, fighting line) support and main body effectually hides the advance of the second, third and fourth line—or more—which may be directed on the decisive point. Behind the screen of smoke and dust formed by the fighting line, Artillery and Cavalry might move without being observed till within some 600 yards of the enemy's position, when their sudden appearance, so totally at variance with anything to be found in the book, might have a disquieting effect on the defender, to say the least. It may be granted that sooner or later we must expect to cross swords with European troops in India ; but before this happens, we may have many and many a tussle with native armies, and perhaps not always in the hills. At any rate our primary purpose in India is to put down at once any rising or rebellion in the country itself. The reason why we are always supposed to be on a war footing, and why

transport for flying columns is kept up (on paper) at various centres, is evidently not because the Russians are expected to appear at any odd moment on the scene ; and for this reason we think it might be better not to give up entirely the practice of those methods we ought to employ against a non-European foe. It is no good saying that when the time comes, we shall adapt our tactics to circumstances. Experience proves that we shall not : neither generals nor soldiers can at once on the first battle - field emancipate themselves from the chains of custom. If ever there was an occasion for the employment of the good old British plan of attack, that was Maiwand ; but our commander proved himself incapable of taking the responsibility of casting the drill book overboard.

Besides extended order, the breech-loaders have developed the tendency to outflanking ; but outflanking tactically is only possible when the assailant possesses a numerical superiority, a condition which can

rarely occur in our case. They have further caused us to rely more on fire than on shock, and thence robbed our advance of the moral power of its rapidity. We say "our" advisedly and with regret, for it has not done so in all countries. The advance of the German column of attack (for it is really a column, with distances of 400 to 500 yards instead of 600 yards) is at least as rapid and carries with it a greater moral effect than that of the old line formation, but to apply it slavishly to our own condition would be like using a steam hammer to break a nut. Now, it is universally admitted that the Oriental mind is much more impressed by the moral effect of a rapid resolute advance than by gradual extermination at a distance, and, indeed, in this they are not singular. Only breech-loaders in European hands renders such a rapid resolute advance impossible, whereas Tower muskets, old Enfields with a proportion of Jezails do not. We do not wish to be understood as advocating blood-

less victories—far from it : we wish to kill and destroy as resolutely as Clausewitz ; but we wish to see the killing done at short ranges, with the minimum expenditure of ammunition possible. On the score of safety to ourselves we have also a word to say in favour of the old line formation being still practised. We have had numerous experiences of late years showing what desperate men, armed only with sword and spear, can do against even European troops and first rate native regiments armed with the Snider, the best weapon to stop a rush with at present in use. Is it safe to count on ordinary native regiments armed with a less efficient stopping weapon as they soon will be, doing so too ? The fate of one regiment in the Soudan does not promise well.

With regard to our native troops, we are counting altogether too much on the nature of the arm and too little on that of the man. All experience proves that the weapon must be adapted to the man and

not *vice versa*. Even in Europe the breech-loader has not proved itself quite the universal aid to victory it was prophesied to be. The most enthusiastic believer in Native Infantry will hardly maintain that they are steadier or better adapted to the breech-loader than the Infantry of the old French Imperial Army ; yet some 8,000 of these, supported by Artillery and armed themselves with a very fair weapon, were ridden over by the rush of 700 Prussian horse, of whom not more than 40 at the outside were bowled over before the actual shock, and this though the Prussians had some 1,500 yards of open to cross. Since the introduction of the breech-loader, we ourselves have not been called on to face Cavalry on the battle-field, but if we ever have, is it likely that Native Infantry will do better than the French ? We are not so conservative as to wish to see our native troops rearmed with the "Brown Bess," but we wish to see more attention paid to training them to overcome the difficulties

inseparable from the new arm. These difficulties are all summed up in the expression "fire discipline," and we would begin by teaching them true fire discipline in close order before troubling about open—teaching them to walk in fact before asking them to run. But to do this the close order drill of the British Army would have to be altered thoroughly in spirit, though not in letter.

Instead of the aimless changes from column to line and line to column round the sides of a barrack square, changes of front on a line of markers, &c., we would substitute something more in accordance with the company column close order drill of the Austrian and German armies. With the conditions they fight under it seems out of date, and their young officer frequently make fun of it, but the higher authorities see in it a means to an end, and insist on its execution as rigidly as ever. But it would suit our requirements exceptionally well, for our probable enemies, as

already stated, are not likely to compel us to adopt extended order. Briefly, the changes would consist in (1) the abolition of markers (except for parade); (2) formations of line from column at oblique angles; (3) the habit of covering all such formations by the volley fire of the first company up; (4) advance across country in echelon of half battalions on a distinct objective, the halted wing covering the advance of the others by volleys, and concluding with a bayonet charge; (5) the practice of long advances in line, observing the utmost discipline. It is not a long list, but troops which could execute these movements with the steadiness and precision with which either of the above-mentioned armies do, would be capable of smashing any non-European army whatever. The class of attack we should propose against such an enemy would rely for success on its rapidity, boldness, and the infliction of crushing loss in the minimum space of time. Where the ground admit-

ted, we would place the Infantry in the centre in two lines with a reserve, with the Artillery and Cavalry on the flanks. The Artillery would accompany the Infantry on the flanks precisely as in the old days up to case shot fire, and not till the advance began to mask their fire would the latter open theirs. Six aimed volleys a minute, which can certainly be delivered by steady troops with a breech-loader (Frederic the Great's Grenadiers fired five) should at this range be sufficient to break anything. And troops trained to do this would be already on the high road to success in European war. It is not so many years ago that we could do it, and our German critics are never tired of asking us why we retraced our steps. "The basis of all modern Infantry tactics, ever since the days of Frederic, has been the line; the tactics of to-day are the purest line tactics, except only that in the fighting line the enemy's fire renders dressing and the touch impossible, and that where Frederic found

two lines and a reserve sufficient, it is now necessary to put in four or five. Whereas the dangerous zone was formerly about 200 yards, it is now 2,000 ; and if the discipline of Frederic the Great was necessary to make man face the losses of those days, how much more is it necessary now ? ”

Many of our own writers appear to imagine that it was merely “cussedness” on the part of the old leaders, and especially of the Iron Duke, to lay such stress on discipline; but the Germans know otherwise : they know from experience that nothing can be done without it, and the only way to teach it is to begin at the beginning and not at the end. When the time for extension comes disciplined men can be trusted to themselves, undisciplined ones would disband half-way.

THE ENTRANCE EXAMINATION FOR THE ARMY.

THE present system of open competition for the army has now been in existence for a sufficient period to form some opinion as to its working, and to see how far the gloomy predictions with which it was first greeted have been falsified, or the reverse. Certainly, it cannot now be maintained that, hitherto, it has given us socially an inferior class of men ; the average of the names represented in the Army List is very much what it was before. The sons of rich plutocrats, who it was feared would deluge the army, have shown even less anxiety to face the entrance competition, and the subsequent, comparatively speaking, hard work and dangers of army life, than they did when a position above their own in society was to be had by the mere payment of a sum of money ; and the financial prospects of the young Bri-

tish officer have hitherto not proved tempting enough to attract that class of population to whom money is a primary consideration. The bulk of our young officers are now, as formerly, the sons of officers or country-gentlemen, to whom the honorable nature of the career, with its risks, hardships at times, and the chances of distinction, are still the chief inducements ; and the remainder, those who come from a lower stratum, are also animated by the same ideas, and as a rule make excellent officers. It cannot be denied that, so far, the results are most satisfactory ; it would have been and will be little short of a national disaster, if the career of an officer ever becomes commercially sufficiently lucrative to tempt men to enter it, purely for the sake of gain. An army to be efficient must be officered by a class actuated more by a sense of duty and honour than by financial motives ; and, so far, the abolition of purchase has had a good effect, in removing what, at times, must have

been a terrible temptation to a poor man, with others dependent on him, to shirk his duty—we allude to the loss of his purchase money in case of death. To the credit of the old army, it must be said that but few instances of men yielding to it did occur, but anyone who reads journals and diaries of past wars will be able to recall occasional remarks which shew that the temptation was frequently felt. A Colonel of a regiment, in those days, going into action, risked, besides his life, say £10,000, less the capitalised value of his widow's pension, in addition to his life ; and the knowledge of the fact could hardly have encouraged him in the performance of his duty, where that led him into unusual danger. Theoretically, of course, no such idea should have entered his head ; but, practically, it is impossible but that, at times, it must have done so.

It was chiefly, however, the physical deterioration of the officers as a body that the critics prophesied. We were told that

instead of fine sturdy young fellows, we should be inundated with shoals of narrow-chested, short-sighted, prematurely-aged bookworms ; but, up to date, we must confess that we see no falling off in this respect, but rather the contrary, and the reasons for this are not far to seek. Just as the career offered by the army proves unattractive to those whose sole desire is to make money, so also it fails to attract those deficient in health, energy, and grit, to stand its hardships and risks, which at times are severe enough, as we who are serving our country in India know to our cost. At the same time it is not, and never has been the case, that intellectual gifts have ever been the exclusive property of the physically misshapen ones. With the exception of a few geniuses, whose brains have grown at the expense of their bodies, bodily energy and skill in all games usually go with sharp wits. Every public-school man will remember that it was not the big idle fellows in the lower forms,

but as a rule the boys in the sixth form, on whom the credit of the school in games and athletics rested. Even in football, where weight and numbers told tremendously (in the Rugby game), it was generally the sixth that thrashed the school, and in cricket, racquets, etc., it was indeed rare not to find some of the best men in the highest form.

Not long ago when it was proposed in the papers to give marks in the Army Entrance Examination for proficiency in athletic sports, we were bidden, in numerous letters from despairing parents, to contemplate the hard fate of a fine active youth, who was a good cricketer, rider, and shot, but who never could master the terrible ordeal of an examination. But we have devoted, first and last, a good deal of observation to this particular style of youth, and have come to the conclusion that he is on the whole very rare, and generally by no means the class of man we want in the army. The fact that he can-

not bend his mind to master the subjects required of him, points to an incurable tendency to idleness and a want of purpose—in other words, to want of character. At the early age at which these examinations are held, this is almost the only way in which we can test his character, and it is character, determination, and perseverance, above all, that we require in an officer. Let any one review the list of his old school-fellows, and follow the history of the boys who answered the above description, and he will be surprised to see how few of them have ever come to any good. Some of them out in the Colonies, who have been thrown on their own legs have done well, but of those who stayed at home a good many will be found to be serving Her Majesty in the ranks, and not doing that over and above well. But the proof of the truth of what the defenders of the competition system urged was in existence all the time, though we do not remember to have seen it noticed. Wool-

wich has for long been conducted on a competitive basis alone, whereas Sandhurst formerly was not ; the two institutions competed annually in every form of sport, for some thirteen years, until, in fact, the system at Sandhurst was altered ; but though the latter school had nearly half as many again to choose from as the former, the challenge-shield for athletics never once left the hall of the R. M. A., nor was it ever beaten at football and very seldom at cricket. Now, in those days the competition for Woolwich was at its highest, whilst Sandhurst was recruited almost entirely by nomination. But now that the system has changed, and that whilst the competition for Woolwich has materially diminished, and that for the Army has increased, Woolwich no longer occupies her former proud position, and the difference in age between the two establishments is not in itself sufficient to account for its loss, for the best men at Woolwich were by no means always to be

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found amongst the seniors in age. Similarly, going a step further, we find that, at the time the competition for Woolwich was at its hottest, the corps of Royal Engineers stood much higher in the athletic world than it does now. The Association Football Cup has not been held at Chatham for a good many years, nor have we seen monster scores at cricket made in those years repeated. To the best of our belief, that made in 1875, of 756 runs, for 7 wickets only, against a strong team of the I. Zingari, has never yet been beaten anywhere. But a still stronger proof of the position we advance may be found in the comparatively low death-rate from sickness, which rules in both the scientific corps. It is noticeable in the Artillery, who are quartered in much the same places and lead the same lives as the rest of the army ; but it is much more so in the case of the Engineers, of whom a far larger proportion in civil employment are exposed to infinitely worse climatic condi-

tions than any other branch of the service. There is no comparison between the exposures to be faced in the Survey Department, in irrigation work, or on Frontier railways, with that usually undergone in cantonments ; and then again, the very small allowance of leave allowed to the corps, and which keeps many a man year after year in the plains, must be taken into account. Now, pushing our investigation a step further, we will consider the men who of all others in the army would be most likely to shew the effects of over-examination—*viz.*, those who pass first of their class out of Woolwich, probably the most examined men in the world—taking the Army List, as a rule, we find that there is not much difference between them and at any rate the first half of their class ; but there are a number of exceptions, *viz.*, men who have specially distinguished themselves ; and nearly every one of these is conspicuous for physical stamina. Surely then, if the educational

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screw, applied with its utmost pressure, has not succeeded in turning out a physical monstrosity, there is no reasonable cause for anxiety for the result of a lesser strain.

Whether the greatly increased sobriety of living, and general diminution of extravagance is to be attributed to the change of men, or is merely due to the improvement in this respect which has been going on throughout society, we are not prepared to say, though we should be inclined to favour the former idea ; for the same qualities which induce a boy to stick to his work and persevere, are of course those which will best help him against the temptation to display. It would be interesting to see tables of the number of officers who retired "broke" from Her Majesty's Service since the present *régime*, and during an equal period of the old one. We fancy the younger generation would shew up very favourably.

In conclusion, we think that fifteen years of the new system have proved conclusive-

ly that the reformers were right, in this case at any rate ; and we have no fear that, in point of physique, we shall ever run short of the stuff leaders are made of. The country at least gives good material to the army, and it is the duty of the army to manufacture the finished article out of the raw stuff.

THE TRAINING OF OFFICERS.

THE authorities have wisely laid down that all officers should, before joining, go through a course of instruction on the general principle on which the three arms are handled, and on which modern war is conducted. Whether the text-books in these sciences, or the method in which the examinations are conducted, are equally wisely chosen, is a question we do not here intend to investigate : we only propose to deal with the stock objection usually urged against them at the mess table—"What possible use is it to the average regimental officer to know how to lead an army corps or conduct a campaign ?" It appears to be altogether lost sight of, that the conduct of a campaign or the leading of an army corps depends entirely upon the reports of the outposts, which have to be furnished almost exclusively by junior regimental officers. Even an Infantry offi-

cer's outpost reports may prove of the greatest service to his country, or the reverse. Apart also from this, almost every officer possesses some ambition to distinguish himself in some way ; and in the majority of instances their ambition takes the form of a desire to get on some General's Staff or another. This they generally hope to achieve by the influence of a remote relationship between themselves and the General Commanding ; or, where even this fails them, they trust to the chapter of accidents, to be detailed some day as Orderly Officer to some Commanding Officer or other. But if they are utterly unacquainted with the broad principle of tactics, how can they hope to distinguish themselves in this very responsible position ?

Let us take a few instances in which the fate of battles, even of nations, has depended on the action of these very humble subordinates. First let us take the gallopers. On the night of the 14th June 1815, a young French aide-de-camp was given a

most important order to convey from NAPOLEON'S head-quarters to the leading corps of the central column (VANDAMME'S), to move off at daybreak and cross the Sambre into Belgium. Probably a good deal of the blame which fell on him was deserved by the Chief of the Staff himself, for not sending the order in duplicate ; but the young officer himself cannot be held blameless, for had he been thoroughly up in his work, he would have taken with him his servant at least ; but as it was he went alone, his horse fell in a ditch, he himself was stunned, and the order never reached VANDAMME at all. The result was a delay of over four hours to the general advance. That delay practically lost NAPOLEON his campaign. Next day, the 15th, another aide-de-camp, not sufficiently acquainted with the general plan of campaign, took upon himself to deflect the march of D'ERLON'S column, from Quatrebras on Ligny. The result was that 25,000 men wandered about all day between the two battle-fields

and came into action on neither, though on both their presence would have been decisive. What trouble his aides-de-camp were to WELLINGTON, the "despatches" prove abundantly. In one of the originals he describes all of them as being d—d bad, but in the printed edition the expression has been euphemised a little.

But to come to more recent times, and we will avoid mentioning any of the instances in our own service where the delivery of an order to the wrong man, or a want of grasp or situation nearly led, and — in civilized warfare—would have led to most disastrous results, but will confine ourselves to examples from the Franco-German War, by which no English officer's feelings can be hurt. At the battle of Woerth, it was the mistake of an Orderly Officer who took an order to the wrong corps which caused what should have been merely a skirmish of outposts to develop into a desperate fight, which might have proved disastrous to the Germans, had it not been for the

wonderful elasticity of their system, and their fundamental principle always to march towards the sound of the guns. With an army trained to absolute obedience of orders, not one corps would have moved towards the field without definite order ; and the result would have been defeat in detail to the whole probably.

It was the report of an outpost which led to the battle of Borny (14th August) before Metz. The charge of BREDOW's Brigade, which practically saved the Prussian 3rd Corps from a crushing defeat at Vionville on the 16th of August, was due to the suggestion of a young Infantry officer of six years' service, detailed as galloper for the day to the Staff of a General of Division. But the importance of this kind of general knowledge is even more striking in the case of the Cavalry, and there is no more royal road to distinction than the sending in of a clear and accurate outpost report. It is enough merely to turn over the pages of the Prussian official account of the campaign

to see this ; everywhere we find the names of Captains and subalterns whose information led to the most important results. The flank march to Sedan was undertaken on the strength of such a report. It happened to be a Major who made it, but the chance might equally have fallen to a junior. We might multiply these instances almost *ad infinitum*, but we think we have said enough to shew that the requirements which our authorities seek to enforce, and against which so many of our young officers kick, are by no means as unreasonable as is usually imagined.

As a nation, we do not excel as copyists. Even in such trivial matters as French fashions and French plays, our efforts are hardly satisfactory : and in military matters we succeed even worse. If we fail in such trifles, as helmets, spikes, badges of rank, etc., we can hardly wonder our attempts at apeing the educational system of Continental nations are far from satisfactory.

The Germans do not now-a-days examine their officers for promotion on paper, as many Englishmen appear to imagine. They did once—before the battle of Jena—hold such examinations ; since then, they have abandoned them.

After a young officer has completed his course at the military school, it seems that he is not required to submit another paper examination, unless he aspires to their Staff College. Their system is first to ground a man well in the general principles of war, and then to perfect him to teach others, under a due sense of his own responsibility. Intelligent, not pedantic uniformity, is what they seek to secure ; for the working of their vast armies of to-day is only rendered possible by the intelligent co-operation of every unit in it. The slightest indication of the end aimed at, should be sufficient to secure its execution, not according to prescribed form, but by the sensible application of the given means.

This system was not built in a day, but,

on the contrary, they have been working at it ever since 1807, and thanks to this steady perseverance, they are now able to work with an absence of friction, to which probably no other army in the world can equal.

Let anyone try to picture to himself the confusion which would arise, if at the present moment, after our system of examinations for promotion has been in full swing for some years, an English commander were to attempt to direct an army, with orders as terse and simple as those of Prince Frederic Charles, for the advance on Le Mans, or those of the King for the change of front on Sedan. To carry out such operations, we should require detailed instructions sufficient to fill a Blue Book; though we must admit that the Indian army would probably do with one-third the number of pages that the Home army would require.

The German system, briefly stated, is to give the young officer a vivid picture of the difficulties to be met with and overcome in war. He is made acquainted, in almost

dramatic writing, with the aspect and course of a modern battle ; he is warned against the fatal lethargy which overcomes even the most determined men, after the fatigues of long marching, and the nervous tension of a hard-fought action. He is taught to picture the long columns of route toiling on through rain and mud or sun and dust, and to remember that at such times only the simplest duties can be performed correctly. Clausewitz's saying, "In war everything is simple, but to secure simplicity is the difficulty" is constantly brought before him.

Our system is almost the exact opposite of the above. The subject, whatever it may be, whether outpost-duty or strategy, is stripped of all flesh and blood till nothing but the dry bones of form remain, and the study of it becomes correspondingly uninteresting. The contemplation of the human form divine, especially of the opposite sex, is fascinating enough ; but few ever see beauty in a skeleton.

Compare the two systems in Clausewitz

and Hamley ;—the former without wearying the reader with detailed studies of campaigns, gives a living speaking picture of the conditions of actual war, and shows where the difficulty of forming a decision, between two such apparently simple alternatives, as turning a flank, or breaking the enemy's centre, really lies. The latter gives a dry (and generally inaccurate) history of a campaign, in which the true picture of war never occurs. This is what makes the study of a subject, which is usually so attractive to all minds, so painfully tedious and repugnant to the unfortunate victim of the examination mania.

Let us take a look at the genesis of the modern text-books. They were written suddenly to supply a want felt by the then officiating garrison instructors. Having for the most part no actual experience of war, and being bitten with the Prussian mania, they bought up the books in use before the war, or those hastily written immediately after it, and did the best they

could with them. But the war itself was the fire which purified the Prussian system from the dross of form with which a long peace had covered it. It simplified their ideas of outpost and advanced guard duties and the details of minor tactics to a surprising extent. It taught them that it was better to march twenty miles a day, and take their chance of an occasional shot from an ambush, than to wear the men's strength out in a minute attention to advance-guard duties; that it was better to sleep soundly on ninety-nine nights, and run the risk of the loss of a few men on the hundredth, than to wear out thousands by overcautious attention to outpost schemes. It taught them, in fine, to adapt means to an end, and not to suppose that any absolutely perfect normal form existed, applicable to all conditions. With riper years and better judgment, the authors who so hastily scribbled their views on battles generally, have reconsidered the matter, and come to quite a different set of

conclusions ; but their later books have remained untranslated, and hence are almost unknown to the bulk of English readers and students, who still plod on amidst details of company columns and other matters as obsolete on the battle-field as the tactics of Marathon. Only the other day we had to give up our brand new outpost scheme, for that of the old Peninsula days ; and we certainly owe the two most crushing disasters of our recent wars, Maiwand and Isandlhana to an attempt to fight an Asiatic battle with Aldershot tactics. Recently we heard a German officer of long experience give the following opinion,—“ Had you Englishmen not been bound by the letter of your drill-book, but had understood its spirit, you would have saved yourselves a world of unnecessary change.” Since 1870 the whole tendency of our tactics has been to go back to the old line formations. The dense line of skirmishers in front, is only the line without its touch—its spirit, not its letter

—and the formations in rear of it, by which we bring our weight to bear on the point of attack are lines with the same rigid discipline as those with which Frederic carried the Austrian batteries at Leuthen ; and indeed the discipline is all the more essential, for, whereas the old line had only some two hundred paces to cross under fire, and had a difficulty in re-loading its muskets when once discharged, the modern line may have 1,500 yards of open to cover, and the men must be restrained from firing their rifles into the backs of the fighting line.

PROFESSIONAL IGNORANCE IN THE ARMY.

THE article which appears under the above heading in the current number of the *Nineteenth Century*, deserves the particular attention, both of soldiers and civilians, not only because of the explanation it affords of the fact that, in spite of the high degree of military instinct possessed by our officers as a body, their knowledge of the practical part of their profession still leaves much to be desired ; but also on account of the experience and knowledge of the writer, COLONEL LONSDALE HALE, R. E., who has spent the last twenty years in instructing officers of every rank and branch of the service, and can therefore write with a grasp of his subject second to none.

The root of the present evil, COLONEL HALE finds in the work of the Commission on Military Education, assembled shortly

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before the war of 1870. This Commission had taken evidence, and, more or less superficially, studied the German system. The war and its result convinced them, as it convinced nearly everybody else, that everything German must be good ; and hence they set to work to make a blind copy of it, and, as is always the case, when we try to copy another nation, left out the principal point altogether. That point was that in the German Army the drill instructors were also the tactical instructors of the army : the two went inseparably hand in hand. Hence in the schools, which were only auxiliaries to the troops, it was only necessary to teach auxiliary subjects such as military topography and fortification. But in our own service the idea of officers teaching anything except drill had long since vanished. Hence it followed, when the German system was blindly applied to us, that we presented the ridiculous appearance of an army instructed in everything except in the one thing for which it existed, *viz.*, for fighting.

Certainly the difficulties which then confronted the authorities were no small ones : and perhaps the way they took to circumvent them was as good as could be expected under the circumstances. To make the senior officers as a body suddenly responsible for the instruction of their men in subjects which they themselves had never had an opportunity of learning could only have ended, even with all the good-will in the world, in hopeless confusion. Uniformity of system is the fundamental necessity in all tactics ; and how was it possible to secure that when every one studied or read what seemed good in his own eyes ? It was therefore better to set about forming a class of instructors in one uniform school at the Staff College, and through them spreading instruction downwards by means of garrison classes. Of course the garrison instructors can only teach theory, not practice ; but it would have been impossible to step in one jump from the old system to the new and make Commanding

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Officers responsible both for the drill and fighting efficiency of their men. The truth is, both COLONEL HALE and the authority who penned the "professional ignorance circular" of last Autumn, both seem in rather too much of a hurry. They point to the German system and expect to see the same results arrived at inside of twenty years, and without the pressure of a great national calamity; which it took the Prussians fifty years and Jena to effect. We might add twenty years more, for fully that length of time, before the fatal disasters of 1806, men like SCHARNHORST, CLAUSEWITZ, KLEIST and others had been preparing the way for the revolution which followed the war.

The parallel between the Prussian Army before Jena and our own at the present moment, or, better, fifteen years ago, is closer than might be imagined. The old Prussian officers were, as ours still are, responsible solely for the drill-efficiency of their commands, and did not attempt to

teach their men tactics. There were not wanting, just as in our own service, men who had studied the fighting of the armies of the revolution, to warn them of the coming danger and to write voluminous essays on how to meet it, in many of which the ground-work of all modern tactical ideas are to be traced ; and also there were committees assembled to discuss these proposals and to adapt them to the needs of the army. But, as is always the case, committees are like councils of war and never fight—in other words—never come to a decision ; and hence when the fatal hour struck, the Prussians, in spite of their splendid gallantry, which they probably never exceeded, were beaten through an ignorance of the very first principles of tactical training. No one can read without emotion the description of those splendidly drilled battalions advancing with faultlessly dressed lines, in slow time (75 paces to the minute), and with bands playing and colours flying,—and then brought

to a halt by numerically inferior forces hidden away in villages, hedgerows and ditches, simply because the drill book had not taught them how to attack either one or the other. In FREDERIC's days this had been the duty of the old free battalions or light troops ; but these had been disbanded on the close of the Seven Years' War, and though repeated proposals had been made to supply their places by the regular formation of light companies, the committees had come to no decision ; and the army took the field without them. The discipline and devotion of the Prussian troops on the field of Jena has perhaps never been exceeded. They went into action with the precision of a review, and suffered heavier losses without quitting their ground than perhaps any other troops, except the Confederates, in history ; but just on that account the lesson they teach is the more valuable, and it is to be hoped we may take it to heart in time.

In another aspect too we have been even less fortunate than the Prussians. They

had still a large number of the veterans of the Seven Years' War amongst them, men who had felt the responsibility of command and who, though too old for the field (only one of them was as old as VON MOLTKE in 1870), were yet not too old for work in council. They had been engaged in a two-year campaign against the French only fourteen years before, and, moreover, fighting had been going on so continuously around them that, as a body, their officers were far more imbued with a knowledge of the psychical aspect of war than our own were at the commencement of our reformation. Hence their writings were of a far more practical stamp than the average of our own. Even before Jena, SCHARNHORST and others like him tried to teach war as it really is, a struggle in which human nature is the essential factor, but with which our own text-books, as a rule, decline to reckon; but just as with us he was a professor, not a leader. Hence his teaching could not bear fruit till disaster

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had forced the necessity of a change on the army. In our case not more than some half dozen men had seen modern European war and they had seen it as spectators without responsibility ; and though most of them were men of great ability, and devoted themselves heart and soul to the spread of the true gospel, they were not able to upset the other school in a moment. Hence for years our officers have not, in spite of examinations, had a real opportunity of learning, and the progress has not been as great as it should be. But, *pace* COLONEL HALE and last year's autumn circular, an immense degree of good has been done. Officers without number have been induced by the pressure of examinations to devote their minds to study and have found the study far from as dry and monotonous as they expected. They have been led to think for themselves, and by degrees the common-sense of the majority is making itself felt, and men and future leaders with sound tactical judgment are

being formed. And now the time is coming when the steps suggested in COLONEL HALE's paper may be taken in hand, *viz.*, the extension of responsibility and the making of every officer the tactical, as well as the disciplinary, leader of his men. Now, too, the screw may be put on those amongst the seniors who refuse to accept the new order of things. They must be distinctly told that they must either learn to lead their own men or go. Warnings have not been wanting to show the direction in which things have been tending, and if they have not chosen to heed the warnings, they have no one to blame but themselves.

The last few pages of COLONEL HALE's paper are particularly interesting, as he there describes in full the working of the German system and the method in which the senior officers are continually engaged in tactically instructing their juniors. He shews us a General of a Cavalry Division utilizing his own spare time in taking out a party of young officers and instructing

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them during a ten days' trip in reconnoissance and skeleton manœuvres—precisely the same lines we suggested in a recent article on the training of officers. As the General in question was himself an Englishman, it at least shews that there is no innate impossibility of an English General following his example.

LETTERS ON STRATEGY.

PRINCE HOHENLOHE, whose letters about Cavalry, Infantry and Artillery are already well known to the reading portion of Her Majesty's Army, has recently given a new work to the public, whose title is above quoted. It is written in the same easy, readable style as his other books, and is rather, as he himself says, an attempt to clothe the dry, hard skeleton of strategical fact with the flesh and blood of experience, and to point out to his readers the way of improvement by private study.

It contains a detailed investigation of the three Campaigns of Jena, Solferino, and the first portion of the Franco-German War, based on the official histories and also on the writings of Clausewitz, Blumé and Bronsart von Schellendorf, the former and latter of which have both been translated into English, but Blumé as yet is only accessible in French or German.

That the book is readable it is almost unnecessary to state : everything the Prince writes is eminently so ; but our particular reason for noticing it at length is that nowhere else in our studies have we come across a book in which the distinction between the modern or German school of thought, and the old-fashioned or English school is so sharply drawn, or the superiority of the former more clearly shown. Modern German strategy in fact is simply the outcome of a prolonged and thorough study of the Napoleonic methods ; it is a case in which the vanquished understood far better than the victor how to profit by the lessons he received. The French never appear really to have grasped the true secret of Napoleon's successes, but have tried to estimate his method by applying to them the ideas of a former generation. Unfortunately we followed the latter instead of the former, and the consequence is that we are brought up, on ideas which were once and for all exploded on the field of Jena,

if not, indeed, sooner. The passage in which Hohenlohe contrasts the ideas current in the two armies at the commencement of this campaign is well worthy of study, particularly by those who only know of the campaign from the writings of General Hamley. He contrasts the bold confident advance of Napoleon straight on to the capital, and formed in one gigantic battalion square of 400,000 fighting men, ready to form front at once in any direction, with the refined strategical cobwebs the Prussians endeavoured to weave about him. It is all very well for Hamley to laugh the Prussian efforts to scorn, but unfortunately the Prussian plan was based precisely on the very ideas that the whole of the rest of his book is written to demonstrate. It was, in fact, an attempt to compensate by manœuvres for the want of numerical fighting strength, and though ruined by weakness of execution, was really as skilful an attempt as could well be made, and in the hands of a resolute leader

who understood how to seize his opportunities would, in all probability, have led to the Emperor's complete destruction. These opportunities were given by Napoleon's deliberately departing from two of the most important of his usual ideas, *viz.*, instead of sending his Cavalry boldly in advance to hunt up the Prussian Army, he kept them too close in, and hence failed to discover where the latter actually was ; and, secondly, as a consequence of the first, being in ignorance of the enemies' whereabouts, he determined to choose the capital for his objective, instead of the field army, trusting that anxiety for the safety of the former would induce the latter to attempt to bar his path. But the Prussians did not fall into the trap : instead of doing so they laid a very pretty one for Napoleon, by taking up a position of great strength on his flank which he was compelled to attack, and for 24 hours the fate of his army hung in the balance, though, knowing the school in which his adversaries had been educated,

the fact does not appear to have caused him the least anxiety.

And he was right. The Prussians could not move without orders, and before the orders arrived the time had gone by. Had the present Prince Hohenlohe stood in his namesake's place, the morning of the 14th October would have seen the greater part of the French Army struggling in the Saale for dear life. The Prince does not say so, but we feel sure he would have done it. Unfortunately it was not the fashion in those days to march "*zum kanonen donner,*" and the saying: "*Meine stiefeln und die Korps Artillerie*" was then unknown. But what is particularly pleasing in the Prince's style is that though he points out where faults and omissions occurred, he only does so to find out why they happened; whereas the ordinary military critic roundly calls the leader a fool for making an obvious mistake, and implies that he himself would have done much better. Hohenlohe goes in to find

out the reason, and usually succeeds in finding a very good one. We may mention here that this is also a characteristic of Clausewitz in his histories of campaigns, and it tends to show up much more distinctly wherein the actual difficulty of command consists.

The failure of the Prussians in 1806 he shews to have been due not only to too great a belief in the power of manœuvre (or strategy) alone as opposed to the power of the sword (or battle), but also—and this is particularly important for us to note—to the too rigid ideas about discipline which was the characteristic of Frederic's small armies, and of our own great Duke's. The failure of the Austrians he also attributes to the same reason : of the accusation of treason, so freely lavished on the Austrian leaders by their disappointed countrymen, he will know nothing, but points out how inevitably each step in their career of defeat depended on the want of initiative entrusted to the subordinate leaders.

But it is in his third study, on the campaign of 1870, that the chief interest of the work lies. In this all comes out : the steady way in which, working up from the Clausewitz's explanation of the reasons for Napoleon's successes, the German " General Stab " had perfected a system for working the gigantic armies of modern days, every step can be read, and the contrast between our own method becomes more apparent. Everywhere the guiding principle appears to have been, Clausewitz's famous saying : " Im Kriege is alles einfach, aber das einfache ist schwer " (in war everything is simple, but to secure simplicity is difficult). Read in the pages of Hamley, and with his comments the war of 1870 appears altogether destitute of strategical interest, and this not because his information is ridiculously inaccurate, but because, according to his method, the difficulty to be surmounted in the moving of these enormous masses does not " spring in one's eyes, " to use a continental idiom. His idea appears

to be to strip war of all that constitutes war and degrade it to the level of a game of chess, or, indeed, lower, for the combinations of a chessboard are many thousand times greater than those of a campaign, in which, after all, there are practically only three alternatives to be faced, namely, to fight defensively or offensively, to turn the right flank or the left, or to pierce the centre. Stated this way nothing could be simpler, and the youngest subaltern may feel himself justified in calling Napoleon or Moltke a fool ; but looked at from Clausewitz's standpoint, which after all Hohenlohe only develops, and the game assumes a totally distinct aspect.

In their school we are taught the meanings of the words responsibility, danger and friction—words which are familiar enough to every man who has seen service. Time and space, too, are matters which Hamley usually leaves out of account when it suits his purpose : but the Germans never do so. In fact, one may summarise the

whole matter in these words :—The text-book in which every aspirant for Staff employment in the British Army (theoretically) must pass his examination, bears on every page the stamp of an amateur : those of the German Army equally evidently the stamp of a trained professional expert. The remarks on the circulation of orders in the Prince's book are specially worthy of consideration, for they bring forward, in a particularly striking manner, the difficulties which have to be overcome, and the extraordinary degree of initiative left to subordinate leaders ; and in this connection also we would refer to Cardinal von Widdern's "*Hand Buch für Truppenführung*," a work which has been translated into French and largely drawn on in our own "*Staff College Lectures*." But to attempt to apply the rules and regulations contained in these two works, cut and dried, to an English Army trained on its present lines, would only be to court disaster. Any such attempt should be

preceded by the most careful previous preparation of our officers to assume responsibility, and also to insure in them a uniformity of military opinion which at the present moment we are far from possessing. It is not that our race is in any degree inferior either in readiness to assume such responsibility or in ordinary military instinct : the history of our Navy abundantly proves the contrary ; but it is simply owing to the system under which we are trained, and though one may gratefully acknowledge the progress made in this direction of late years, yet it must be much more thorough before any good can really come of it.

In the limits of our space it is utterly impossible to exhaust the subject, but we trust we have written enough to stimulate the curiosity of all those who are interested in their duty. The number of these is far larger than is generally supposed : they read and discuss everything they can lay hands on ; but the sound common-sense of the

average Englishman revolts at the illogical nonsense they are compelled to swallow, and in despair they revert to the idea that their own common-sense is a better guide than the books : and so it would be if it was first properly trained. Nobody who listens to the military conversation in messes and clubs can fail to notice this. Good sense is never wanting, but what is wanting is a grasp of *all the conditions* of the problem under discussion. But it is just there that they fail—they are not sufficiently grounded. The three arms do not mutually understand each other, and the regimental officer does not understand the Staff, and *vice versa*. Nothing in this respect is more instructive than to listen to the remarks of the subalterns after a company training or a manœuvre. They are intensely keen and interested, but some umpire or Staff Officer has ridden up and ordered them out of action, and they are indignant. If, instead of a blunt order, the umpire or Staff Officer had explained the matter briefly, all the

ruffled feathers would have been smoothed and a lesson readily learnt. As it is the man's *esprit de* company has been hurt, and he swears never to take any interest in the matter again—and if he wasn't after all an Englishman, full of a love of fighting and sport, probably he would keep his word. It is particularly the Cavalry who suffer in this way, and just because, as a rule, the Cavalry Officer really does take a keener interest in his work than the Infantry man (the writer, be it said, belongs to neither). This species of snub is all the more bitterly felt, and some umpires at home would be astonished at the depth of feeling and flow of profanity their decisions had awakened if they were to overhear the conversations at dinner at the Naval and Military, or in the carriages of the 1-40 up to town.

We dwell particularly on this point, for to develop the cheerful readiness to assume responsibility one must begin very low down. It is a plant of tender growth and

requires careful handling. Either it withers up altogether or it deteriorates into a rank weed more dangerous still, for it grows into eccentric shapes, and there is no counting on the direction it may take when at last given its head.

ON INSPECTIONS.

CONSIDERING the amount of inspecting that goes on annually in the British Army, it is curious to note how little the spirit of the inspection is grasped even amongst the keenest soldiers. Indeed, it is amongst this very class, as a rule, that this institution is most vigorously denounced. Hardly a magazine article or letter to a paper on tactical changes or improvements in musketry training, appears, without somehow or other a sneer at marching past and parade drill being dragged into it somewhere. But yet our forefathers who instituted the system were practical soldiers, and by no means the empty-headed fools it is now-a-days the custom to consider them ; and if we take the trouble to go carefully into the object they had in view in introducing inspections, we shall see that they by no means deserve the discredit into which they have now fallen. The

truth is that the soldiers of the beginning of the century had, as a body, far more practical acquaintance with European war, than any of our present leaders can boast of, and their experience convinced them of the fact that success in battle depends far more on the spirit of the troops than on the efficiency of their armament : a fact which the intelligent study of the history of the campaign of 1870 proves beyond shadow of a doubt. It was not the armament of the Germans in that war which carried them to victory ; for the French armament was far superior to theirs, inasfar as concerns the Infantry ; but it was the magnificent spirit which animated the Germans which led them to shirk no loss in the execution of their orders.

Now, it is the main object of inspections to afford the superior leaders a means by which they can estimate the spirit by which the troops are animated. All the other objects are merely subsidiary. But, to ensure true results from an inspection, it is neces-

sary that the inspecting officer should understand precisely what he wishes to arrive at ; and not be misled by a show of spurious efficiency, attained by too exclusive attention to mere parade work. To an experienced eye this presents no difficulty. There are hundreds of indications that betray at once the regiment which attempts to deceive by barrack-square drill alone. The barrack-square alone will never give the stamp of real efficiency, which the General who knows his work wishes to see. It is in itself intensely monotonous. The men feel it to be so ; and in a short time the want of living interest in their work dulls the intelligence of men and officers, and leaves an unmistakable impression on their faces. It is felt in the very atmosphere of the mess and barracks. A sensible course of real fighting training, such as that carried out in the Prussian Army, leads to an exactly opposite result. The minds and perceptions of the men having been quickened and their interest kept

thoroughly alive in their work, their faces reflect the fact in a way which cannot be misunderstood ; and one feels as one rides down their ranks or sees their battalions sweep by, the same feeling of conscious superiority which animates the men themselves.

To those who have tried to study the action of mind upon mind, there will be nothing extraordinary in this statement. History has again and again proved how overwhelming the force of thousands of minds all concentrated on the same idea, whether a mistaken one or not, can be. How else indeed can the extraordinary outbreaks of mob violence which from time to time frighten the world, be accounted for ? Similarly, it is impossible for the individual mind of a reviewing officer to be altogether unaffected by the dominant thought of the thousands whom he may be inspecting. Where that thought is merely to get through the work in hand as quickly, with as little trouble as possible ; and

where neither men or officers take a mutual pride in each other, the resultant thought which reaches the inspecting officer is one, which no amount of clean accoutrements or mechanical perfection of movements, obtained by a system of harassing punishment, can conceal. Of course the mind of the reviewing officer must, to borrow a musical simile, be in itself capable of vibrating in harmony with the dominant chord, just as a glass may be made to vibrate in harmony to a given note, or may be broken by a discordant one. It may so happen that, during a prolonged period of peace time, in which true military instinct has become obliterated by too great an attention to pedantic details, both men and officers may mistake the false chord for the true one ; and there is no doubt that this state of things has at times been arrived at, and that the outcry against inspections and marches past is merely the reaction from a former false and overstrained state of affairs. But it would be a mistake to

blind ourselves to the fact that the other condition can and does exist in countries and regiments, where the perception for military truth is clearer. Let those who doubt it, go to Germany and see for themselves. We have known many English officers who went there determined not to be convinced, but who returned as enthusiastic as others ; and there is no other explanation possible, for there is nothing otherwise about a German march past particularly adapted to catch the military eye. As a show it is far less attractive than one of our own, the heavy dull-blue uniform, clumsy boots and accoutrements compare most unfavourably with our own brighter turn-out ; yet as the column sweeps by, with almost faultless precision and dressing, one is irresistibly carried away by the feeling of soldierly pride, the conviction of concentrated effort to excel. One experiences the same feeling in watching one of our own battalions that has been trained on an intelligent system. But with us it

is the exception, not the rule ; and one never feels it with a regiment which has been drilled solely for marching past.

Let us compare the feeling produced on the inspecting officer by a regiment of each class. In the latter, as one rides down the ranks, men and officers alike appear bored ; they may hold themselves up and handle their arms smartly, but it is by compulsion and not through personal pride in themselves and their regiment. In the former all look alert and confident, and even where, as with the Volunteers for example, the same precision of movement cannot be expected, the effect produced on the reviewing officer is the same. English soldiers possess, perhaps, a larger share of innate military instinct than those of any other nation, and they are quick to recognise whether their training really gives them a fighting superiority over others or not. It is only necessary to watch them in manœuvres or to listen to their conversation during them to be convinced of this. The

intense earnestness they then show sometimes becomes dangerous. For instance, we remember on one occasion seeing a gallant infantry regiment charged and put out of action by the Blues. The men fixed bayonets without word of command and implored their officers to "let them go in at the Tin-bellies" as they irreverently called them. On another, we recall an old and most respectable veteran drowning his sorrow in the flowing bowl, because on three consecutive days his regiment had been taken prisoners and put out of action. It is too much the custom of our officers to speak of the men as a totally distinct race from the rest of the world, thinking only of idleness, beer, and the canteen. They are nothing of the kind, but have a keener instinct for sport, emulation and war—even imitation war—than any continental race whatever. Only it is absolutely necessary to give them the opportunity of showing it. Comparing the manœuvre work of other nations and our own, both

in the big manœuvres, the company training and in siege works—in the last of which the work is carried on by reliefs night and day, and the conditions approximate in their disagreeableness far more nearly to those of actual war than in the others—and we can positively assert the superiority of our own men's intelligence and interest in their duties. As for their military feeling in war, it has never been questioned. Even our enemies have always testified to it; and only the other day, the German Military Attaché with the Tel-el-Kebir force wrote in the *Militär Wochenblatt* that, as the York and Lancaster regiment went past him to join in the fight of Kassasin, he never saw troops go into action with a better spirit than they showed. Let us only seek, by the adoption of a more rational system for giving play to this feeling to develop and foster it; and we shall soon hear no more about the depressing influence of the inspection and march past.

THE SECRET OF SUCCESS IN WAR.

WHEN the Ashantis observed the advancing forces of Great Britain engaged in running a wire from tree to tree to keep up communication with the base, they at once concluded that this was in honour of some "fetish" whose aid the British forces had thus acquired ; and therefore to propitiate him, or her, as the case might be, to favour their own side, they proceeded to tie strings from tree to tree, in a similar manner. They had got the form, but did not understand the spirit. Similarly, when England saw with astonishment, first the six weeks' campaign of Sadowa, and then the almost equally rapid destruction of the French Imperial Army, she looked about to find the German "fetish" which had done it ; and for the moment found it in spiked helmets, black ball pouches, and similar unessential details. Other nations

went a little further. They did not adopt spiked helmets, but they sought salvation in minor changes of organisation, such as four companies to a battalion instead of six, and similar copies of the form only and not the spirit, not much more intelligent than the string of the Ashantis.

To obtain any real result, our analysis must be pushed much deeper, right down into the soul of things. "The Genius of the Prussian Army dwells in the hearts of its officers," said Rùchel, one of those who commenced the work of army regeneration in Prussia even before the great catastrophe of Jena; and it is indeed amongst the officers that we must seek for it. But it is so deeply ingrained in their very flesh and blood that it does not exactly "spring in the eyes" of the casual observer. Probably many a German himself is hardly conscious how far-reaching are the consequences of that delegation of responsibility to which he owes his authority. But when once properly focussed, it is seen that it is

this very delegation of responsibility which gives to that army its extraordinary power and efficiency ; which enables it to manœuvre in defiance of all formerly-recognised strategy and yet invariably to win.

Let us try to trace its development. The armies of FREDERIC THE GREAT's day were simply dead machines, no part of which could move without orders received through the proper channel ; and for an order to filter through that channel entailed a waste of time which often proved fatal. It did not suit FREDERIC's own method of conducting a war to emancipate his army from this control, otherwise we may be sure he would have done it—indeed he did emancipate his cavalry from it completely ;—but as he did not, and as in those days every other army was only a blind copy of the Prussian, much as they are to-day, it is natural that we should find them, at the close of a long period of peace, even more rigid in their movements than before ; for centralisation of authority is just as certain a product of

peace-time as decentralisation is of war. The French Revolutionary armies were an exceptional product of an exceptional era, and NAPOLEON had the wit to utilise their good points to the utmost. He took them where he found them ; and certainly there is no evidence in his writings to show that he was conscious of the power thus conferred on him. But the disasters of Jena forced the Germans to look into the matter, and CLAUSEWITZ, SCHARNHORST and others were not slow in perceiving the advantages which their enemy derived from the fact that his junior officers were always ready to act on their own responsibility, according as circumstances dictated. In most armies, even in the French as soon as NAPOLEON was gone, this was looked upon as an irregularity to be suppressed, instead of a force of enormous power, when duly controlled in its proper channel. Even our own IRON DUKE would have none of it, when at Waterloo MERCER's troop of Royal Horse Artillery saved the day by

deliberate disobedience of orders. **MERCER** received no thanks for it ; on the contrary, the **DUKE** expressed his intense displeasure. In Austria and Russia it was the same. Indeed, in the Russian Army which fought us in the Crimea the troops had become almost too automatic to run away when they were beaten. We ourselves were so bad that it was possible for one brigade of cavalry to fight against fearful odds in full view of the other, without its occurring to the leader of the other one to go to its assistance. The French still kept a little of the old spirit in 1859, and thereby succeeded in defeating an Army in every other respect decidedly its superior.

Meanwhile the Germans had been systematically training this new force, and the result would have quickly attracted notice in 1866, had not the attention of the lookerson been drawn off to subsidiary points, such as the breech-loader, or the supposed high average of general intelligence in the ranks. Taken alone, both

those factors would have been powerless. In the war with Austria let us reverse the rôles and put the Prussian staff and army in the position of the Austrians. They would have pounced on the isolated columns as they issued from the mountains, and rolled them up in detail. The Germans knew that they ran this risk, but they seemed also to know that, owing to the innate viciousness of the Austrian system, the latter would be unable to avail themselves of their advantage. One can hardly suppress a smile at the self-complaisance of critics of the HAMLEY school, who point out gravely the violation of all strategical principles on the part of the Germans. Can they really suppose that a man of MOLTKE'S capacity acted in ignorance of the A. B. C. of his art? Have they never heard of his favourite motto "*Erst, wägen, dann wagen,*"—First ponder, then risk?

But it was in 1870 that the full power of this latent force was really shown. The wheels of the machine had been greased

with the oil of experience, and the army worked more like a sentient organism than an automaton. When the feelers and tentacles of an octopus come in contact with its prey, they close in spontaneously without waiting for orders from the rudimentary brainless just so, when the outpost of the German Army came in contact with the French, they closed in on them and crushed them. Woerth, Spicheren, Borny, Vionville, were all fought on the same plan. No sooner was the first sound of the guns heard, than instinctively every limb of the army closed in on the victim, and before night-fall a sufficient numerical superiority to ensure victory had been achieved. Safe in the knowledge that his comrades within sound of his guns would come to his assistance on their own initiative, each leader was ready to engage on his own responsibility, no matter what the odds against him appeared to be. There was no waiting for orders while a comrade was being destroyed; but every man within

call streamed into the decisive point. Hence, again, the Prussian staff were able to set the principles of the old strategists at defiance. At Gravelotte, they fought with their faces turned homewards, in the same position that proved so fatal to the Austrians at Marengo. In the investment of Metz they dared to establish themselves along the circumference of a circle some 42 miles in extent in face of an army concentrated in the centre and able to attack on any point along the radius of only seven miles in length. But this daring was successful ; for they knew that no sooner were the sounds of the coming action heard, than everybody of troops within reach would stream into the decisive point, without waiting for special orders.

Perhaps the system did not work always perfectly ; for nothing human every does. In the next war it will probably do better still, but the nett result was successful beyond expectation, and we will go so far

as to maintain that in no other way could such a result have been attained. But what reason can there be why we should not in turn set to work and develop the same force. Surely a readiness to assume responsibility is not a special gift belonging to the German race; the capacity exists just as much and probably more in our own. Delegation of responsibility is the key-note of our success in commerce, in manufactures, and specially in the management of our railways and great lines of ocean steamers; and why should not the same system applied to the army obtain the same results. And it will not be so difficult to adopt it as might be supposed, though it would be absurd to hope for immediate results. It is a plant of slow growth, and needs a considerable amount of fostering. But when once it begins to be understood among the regimental officers that each in his separate station will be held individually responsible for the fighting efficiency of his men, then emulation will

be excited, and the very elements which at present seem to block the way will become its firmest support. It is the tenacity of power once conferred that makes the higher leaders so averse to conceding anything to their subordinates ; and it is the feeling of being denied their proper share of responsibility that makes the younger ones restless and inclined to kick. No man will do as good work for another as he will for himself—it is not in human nature that he should. But make him feel that his career is really at stake on the quality of work he does, and he will stick to it like a slave. A man worth having must have an outlet for his energies somewhere, and if he cannot find it in his work, he will seek it on the race course or cricket-field, or wherever else his special idiosyncrasy leads him. But train that energy its the proper direction, and it will be all clear gain to the efficiency of the army. English officers are not essentially different from those of other armies, for

human nature is pretty uniform all the world over. If there is a difference, it lies indeed in the direction of superior keenness on our part ; for wherever an Englishman serves side by side with a foreigner, he nearly invariably distinguishes himself above his fellow ; and the histories of those Englishmen who served either in the Austrian or the German Army is proof enough of the truth of this. Give us the same system, and we have not a shadow of doubt that, in a few years' time, our officers will be as far superior to those of other countries as our civilians are in everything in which their individuality is allowed full play.

EUROPEAN AND ASIATIC WARFARE.

THERE seems to be, amongst the numerous would-be reformers of our army, a considerable numbers of individuals who apparently have not realised the fact that making war in India or beyond the Suleiman Mountains, is a very different affair from fighting the French in France or the Netherlands. One hears it said that foreign armies can move about without tents and followers ; why should not ours do so too ? It seems to be entirely overlooked that modern European campaigns are fought with national armies ; whilst we are still compelled to fight with a standing one, and whatever we may eventually decide to do with the Home Army, the Indian one can never be anything else than what it is now.

But the difference this makes in the conduct of a war is far greater than is usually imagined. Whereas the European leader,

confident in his numbers, can boldly adopt the Napoleonic system, the Indian General is compelled to fall back on the methods which proved so fatal to all the nations of Europe when opposed to the former. It was NAPOLEON who first discovered that the fighting power of a nation depended on the product of its inhabitants and its wealth. A country too impoverished to maintain and equip properly a standing army, could yet, by a reckless expenditure of men, succeed in defeating its enemy; whilst a country with great wealth but numerically small forces—or which comes to the same thing—which was willing to spend its all on its army could, by maintaining that army at a maximum of efficiency, successfully hold the field against numerical superiority. But a country which did neither was certain to go to the wall.

The first case was proved over and over again against the Austrians in Italy: their standing army, splendidly drilled and well-equipped, was opposed to the half-clad

starving soldiers of France. But Austria was a country not rich enough to replace such an army if it was sacrificed, and therefore her Generals dare not risk it on a bold stroke, but, after the manner of second-rate leaders of all times, they proposed to make war by manœuvring and not by fighting. NAPOLEON knowing that the resources behind him in men were practically inexhaustible, and being also a great leader, risked all to win all, and succeeded. But there was another point against the Austrian—for the matter of that against all the old armies—and unfortunately the drawback exists still in our own. Each individual soldier costs so much time and money to train that he was far too valuable to be lightly expended : hence he could not be called on for rapid marches, or to face the exposure to the weather in bivouac ; the losses entailed by three days' forced marching, and three nights' bivouac are nearly equal to those of a general action ; hence he could only move slowly,

and had to be provided with luxuries in the shape of tents, and in course of time became so accustomed to these things, that his leaders felt he could not do without them. NAPOLEON was hampered by none of these things ; if it was necessary to expose his men to hardship and to the toil of unheard-of marches, he never hesitated, even if he left one-third of his strength on the road ; and herein lay the secret of his extraordinary mobility. Of course these drawbacks in a standing army are to be overcome by the force of character of great leaders, and FREDERIC THE GREAT and WELLINGTON both proved that it could be done, but the disadvantage necessarily exists, and tells on all except men of their stamp, who never have been numerous in any army. The Germans were the first to realise the new order of things, and with characteristic thoroughness prepared to meet it. In spite of the poverty-stricken state of the country after 1807, they set about raising men in greater numbers in propor-

tion to population than has ever been done before or since, and though their armies were almost destitute of equipment, in a few years' time they were able to turn the tables on their adversary, by the use of the same means—a reckless expenditure of men. When the war was over, she alone of the Allies saw that in a continuation of this method lay the true secret of success in modern war; the rest all went back to the standing army and in a short time the old faults cropped up again, as the wars of 1859, 1866 and 1870, conclusively proved. But Germany alone saw that a poor country financially could succeed against a far richer one, if she was prepared, to hurl masses of men on the decisive point before her enemy, and to shirk no losses, either in battle, on the road, or in bivouac—to win the first fight; and therein lay her strength against her far richer neighbours, Austria and France. Now she has set the fashion; every country in Europe is compelled to conform to it, and if we were wise in England, we should

do the same, for, if our country is ever invaded, our riches will not avail.

But out here things are on a perfectly different footing. We are here as a standing army on a war footing, and our business must be to save every man for the fighting line, by every means in our power ; and, therefore, if it conduces to the efficiency of our man, to save than a great portion of the labour of grooming their horses, cooking their food, and so on, we are wise to do so, provided always that, when the time comes for fighting, we can clear for action and rough it if necessary. The difficulty is to keep this proviso always before both men and officers. As sure as a regiment gets accustomed to its little luxuries, it is inclined to think it is needlessly harassed if called on to do without them. Colonels hate to see their men frittered away on working parties or duties, which at first sight look as if they might be done by native labour instead ; but it is impossible to take them all into the

General's confidence, and shew them why it cannot be avoided, though there may be a thousand reasons for it. Certain it is that it lays an increased load on the shoulders of the leader, but it only renders it more incumbent on him to win the confidence and affection of those he leads, which, if he cannot do, he is not fit to command. But, it will be urged, look how you diminish the mobility of your troops, by dragging after them a train of camp-followers and impedimenta ; how will you compete with the Cossacks, who roam the primeval desert without any *bandobast* at all. We believe we shall compete with them very well indeed ; for an Englishman can stand just as much hardship and privation, when put to it, as any Russian ; and since the latter will have more than double if not treble the distance of land transport behind him that we shall have, we should expect under equal conditions to leave only one man behind for every two or three of theirs, and by reasonable precautions for

their health to reduce that proportion by half. As for the slowness of movement which our impedimenta entail, the way to correct that is, by better organisation, to render them more mobile, so that they may be able to keep up as nearly as possible under all circumstances. Of course, we do not propose to drag useless lumber about the desert, but we wish to protest only against ultra-extreme notions of copying the Russians, Germans or any one else's arrangements for a totally different climate, and state of affairs. Our strength at the outbreak of a war lies in our wealth, our weakness in our paucity of numbers ; and therefore our object must be not to spare a lakh if, by spending it, we can put an additional hundred rifles into the fighting line. As for saving them when once they are there, by the adoption of timid tactics, instead of decisive ones, that is another matter. Once on the battle-field, to win is every thing ; for no one can count the cost of defeat, especially in such an army

as ours. God help us if ever we fall into the hands of a leader who seeks to find safety in the choice of a position, or to avoid loss by burrowing in the earth like a mole. It is true that in this he may avoid being beaten, but avoiding a beating and winning a victory, are too very opposite things. Nothing is of worse omen for us in the coming struggle than the talk one constantly hears of shelter trenches, cover, and defensive position, as if these were all that a campaign requires.

CAVALRY v. INFANTRY AT LAWRENCEPORE.

THE close of the Cavalry Divisional manœuvres at Lawrencepore was marked by a sharp action between Cavalry and Infantry, which seems worthy of special study in detail.

The opposing forces consisted of the 1st and 3rd Brigades, with one battery R. H. A., under General Luck on one side, and the 2nd Brigade, with one battery R. H. A., and four companies of the Highland Light Infantry, under Colonel Palmer, on the other. The former had, during the course of the morning, succeeded in establishing its superiority over the latter in a couple of dashing charges in the open, and it may, therefore, be presumed that the beaten force had suffered considerably in its moral cohesion ; in actual war of course the victor would have availed himself to the utmost of his advantage, and pressing close on the

heels of the vanquished, would have driven them before him towards Attock "to the last breath of man and horse." But this phase of war cannot of course be depicted on the manœuvre ground. Accordingly, when the decision as to the result of the last charge had been given, Colonel Palmer's Brigade was allowed to withdraw unmolested, whilst his assailants dismounted and looked round their horses, or should have done so. These, in spite of their bivouac and the hard work they had already gone through in the previous operations of the morning and on preceding days, were on the whole in highly creditable condition, particularly in the K. D. G.'s, and when time was called, were as fit to undertake the work before them, as horses ever would be in the field itself.

About half past two the contact squadrons were thrown out, and immediately afterwards the division itself moved off in two lines in echelon from the right, each in line of squadron columns. We may

here make Von Moltke's almost invariable remark on these occasions. "Gentlemen, there are too many scouts, one man in open ground can see as much as twenty." Considering that the ground they were now moving over was a very gently undulating plain, in which, except to the left front, concealment was scarcely possible, and that it is a first principle when two forces are within striking distance of each other to keep every man and horse in hand for employment in the decisive shock, it might perhaps have been better to have scouted the front and right of the Division by officers' patrols alone, a proceeding which would have economised a whole squadron of the King's Dragoon Guards, whose presence as a last closed reserve at the decisive point would, as matters turned out, have been of the greatest assistance. Meanwhile the Division continued its advance at the trot and walk, dense dust clouds drifting over the columns and suffocating both men and horses. Viewed

from behind, it resembled a travelling mass of London fog, which betrayed every movement for miles round. But this was one of the conditions of the country, and fortunately the defenders were in no condition to take advantage of the information thus derived. After toiling through this heavy sand for a long two miles, the whereabouts of the enemy began to be made out, and the battery of Royal Horse Artillery which had been coming gallantly along in spite of the ground, and had shown no particular difficulty in keeping pace with the Cavalry, notwithstanding it had to move on a longer arc than the latter, came into action on a slight rise of the ground, and opened fire at about 2,200 yards on the enemy's guns. The first round drew the fire of the Infantry, which was now discovered to be posted, some on the bridge crossing the Chiel River, and others, (the greater part,) lining the ditch at the foot of the embankment of the road. Next on their left came the guns, and

again beyond these stood the enemy's squadrons, halted in the open. The distance was very great, and against the dark background of trees which here border the road they were almost invisible. We cannot pass by this premature opening of fire on the part of the Infantry without remark ; with the exception of a dismounted patrol of Native Cavalry under cover behind some low walls, and at a distance of fully 1,200 yards from the Infantry, there was no other object except the guns in sight, and we, therefore, presume they were the object fired at, for it would be too ridiculous to waste half-a-dozen company volleys on a detachment whose presence or absence on the field, was a matter of complete indifference to everybody.

But to open fire at 2,000 yards, and more with rifles only sighted to 1,400 yards, and at a target as unsatisfactory as a battery of Artillery, and for the sake of the shadowy chance of killing a couple of horses or men, which would not inter-

fere with the fire efficiency of the battery in the least, to renounce the palpable advantage of concealment and ambushade ; is pushing the doctrine of long range firing beyond the limits of sober reason ; and we trust that such ideas are the exceptions and not the rule in the British Infantry..

But to return to the Cavalry. The problem now before the leader was an extremely difficult one. His enemy, safe behind a broad river bed, which, though fordable pretty nearly everywhere, was sure to disorder the attacking squadrons considerably, and with his flank resting on the bridge, which might be expected to be held by the Infantry in force, declined to risk himself out in the open. His only chance lay, therefore, in a turning movement executed without detection, which should take the Infantry in rear, whilst at the same time he attacked it in front ; and for this purpose the nature of the ground on his left flank was fortunately favourable. Accordingly the three squadrons of the

King's Dragoon Guards and two of the 5th Bengal Cavalry, were ordered to move round under cover of a village and some tops of trees, and to attack the road in rear after making a complete circuit round the enemy's flank. The flanking party under Colonel Cooke trotted off, the centre halted under cover, and the artillery duel went on. It seemed an age to wait, for by this time the excitement of mimic war, very keen in its way, was thoroughly aroused, and as we watched the heavy dust cloud which marked the movement, it seemed impossible but that the secret should be betrayed. But no, the fire of the guns still continued, backed up by the purposeless volleys of the Infantry. At last the moment to advance came, the central portion of the attack, some 12 squadrons in all, moved off in a single line of squadron columns at deploying intervals, trotting : as they crossed the wave in the ground which had hitherto hid them they fronted and the next moment broke into a gallop with 1,500

yards over heavy sandy ground to cross under fire before the shock. No sooner were they seen, than the Infantry fired and the guns blazed up all they knew, and instinctively the Cavalry quickened their pace. About half the distance was covered, on the left the pillar of dust was closing rapidly on the enemy's flank, but still their frontal fire did not slacken. The enemy's squadrons were seen to be advancing. It was now a race for the river, to get across and re-form before the enemy could come up. The horses now were nearly racing, it was a tremendous effort they were called on to make ; and, after such a long day's work, we doubt whether any Cavalry in the world could have responded better. Only 300 yards more to go now, when suddenly the Infantry fire slackened, and we saw men doubling to the rear and scrambling up the embankment, and the next moment firing broke out on the further side of the road. Now the Cavalry were plunging down into the bed of the river

and emerging on its further side, but the 18th Bengal Lancers were already too close ; and, had the action been in earnest, the left wing must infallibly have been thrown headlong down into the nullah again: and now for a couple of closed squadrons, but, alas! they were not at hand. The next moment the dust cloud drifted over all, and every thing vanished from sight. The cease fire was sounding as we galloped across to learn the fate of Colonel Cooke's attempt. A glance round reassured us ; in the roadside ditch lay a line of about 100 Infantry, on the bridge, stood a couple of dozen more, two guns were unlimbered and still smoking from the last discharge. The Cavalry were halted about 100 yards in front of them. The surprise appeared to have been almost complete, the Cavalry approach had not been detected till they were almost within charging distance, then two companies of Infantry had been hurried across the road and a couple of guns. The Infantry in their excitement had instinct-

ively adopted the practice of the drill ground, and had thrown themselves into the ditch for protection, and in so doing had sacrificed their field of fire. The guns had hardly had time to fire a single round. Actually, the attack would have swept over them, crossed the road and come down on the rear of the remaining Infantry and guns, but just too late to save their friends of the centre. A lively discussion was going on all round as to the effect of the charge, and we regret to state that there was a good deal of the "Oh, but Cavalry can't charge unshaken Infantry" kind of idea in the air.

But let us go into the question a little closer, and try to see the picture it would have presented in real war. For more than half-an-hour the defender's guns and Infantry had been under a heavy shell fire, which could not have failed to have had a decidedly unsteady effect on the nerves of the latter. Whilst the central attack covered nearly 1,000 yards, volley after

volley had been poured into them without any visible result in checking their pace. We stick to this assertion, for we absolutely refuse to believe that, if 700 Prussian Cavalry could not be stopped by 8,000 rifles and 5 batteries pouring shell and bullets into them for 1,500 yards over hard ground, Indian Cavalry could be stopped by the fire of six guns and four hundred rifles over 8,000 yards of soft ground. No doubt, allowing for the superior coolness of our own Infantry over that of the French, a good number of casualties would have been caused ; but these would have been hidden by the dust, and would have had no appreciable result in checking the momentum of the mass.

It is not in human nature to witness the approach of a thousand galloping horses without a certain amount of trepidation, and now, just when excitement is at its height, comes the cry, " we are surrounded." If those men, even in peace, were too excited to see that they sacrificed all the

advantages of a clear field of fire by getting in the ditch, is it likely they would have shown more intelligence in war ? As it was, the Cavalry were within 300 yards before fire was opened on them ; 300 yards at charging pace, even on blown horses, would be covered in 20 seconds. Even allowing the Infantry to get off three rounds in the time, and that one in three brought down its man, there would still have been about 250 left, to dash over the Infantry and cross the road. In all probability not one bullet in fifty would have dropped its man or horse, and the two rounds of case might have accounted for 20 between them ; so that the total loss to be anticipated would have been under 30 men, and even against repeaters it would probably have not exceeded 36. But, is a loss of 36 men going to stop a British Cavalry regiment like the King's Dragoon Guards ? The question needs only to be put in this form to show its absurdity. The proper position for the Infantry to have occupied

would have been the bridge itself. From there they would have commanded the whole field of attack, have taken the Cavalry in flank, and have been themselves practically unassailable. Instead of that, only about 20 men were there, and these were so excited by the combat, that they formed rallying square and fixed bayonets, thus sacrificing their fire at the very moment it was most required. A more instructive day we have seldom witnessed, but of its lessons, other than this one, we must speak another time.

LESSONS OF THE LAWRENCE- PORE CAMP.

GENERAL LUCK deserves the most sincere thanks of his countrymen for the energy he has displayed in organising and carrying out the manœuvres at the Lawrencepore Camp. It must not be supposed that concentrations of troops on this scale for peace manœuvres can be carried out in this or indeed any other country, except, perhaps, Russia, even by a Commander-in-Chief, by the mere stroke of a pen. Civilians are too apt to imagine that armies only exist for the purpose of spending their hardly collected revenues, and forget that if it was not for the existence and fighting efficiency of the army there would soon be no revenue to collect at all. Transport and Commissariat officers, too, can hardly be expected to show the same keenness in undertaking extra severe work, the glory of which they do not share to

the same extent as the combatant officers. Even these latter possess a certain amount of inertia which requires to be overcome ; and to reconcile all these conflicting interests, and to induce them to work harmoniously, is a task which calls for all the qualifications of a leader which a man may possess.

It is no small thing to be called on to carry out for the first time a concentration on such a scale, and the consciousness of having made a brilliant success of it will not be the least of the General's rewards. But though the meeting has been undoubtedly successful, we shall fail to derive the full benefit therefrom, unless the authorities see their way to publishing for the information of all the army a careful and thorough critique of the operations themselves and of the lessons to be derived therefrom. This is unquestionably a Government duty, for no one else, except those acquainted with the official details of events, can be in a position to do the

subject justice. In manœuvres, it is always the case that, owing to considerations of supply, &c., unrealities are liable to occur, which may mislead the outside critic into dealing undeserved censure to both leaders and troops concerned. But to dispense with criticism altogether would be wilfully to limit the usefulness of the work done to the individual regiments and staff who took part in it, instead of enabling the army to derive profit from it as a whole. But pending the appearance of such an official critique, we purpose to consider a few of the points in the detail training of the men and horses engaged, which require no special knowledge of the motives of the leaders to understand.

Let us begin with the very rudiments of the whole thing. "The efficiency of Cavalry depends in the first place, fundamentally, on the control of the individual rider over his horse." That is a principle as old as the time of Scipio, who was one of the most distinguished Cavalry leaders

of any age, and it is as true now as when first formulated. But in the manœuvres recently brought to an end it was apparent, even to the casual observer, that in this respect very much indeed was wanting, particularly in the Native Cavalry regiments. Neither men nor officers appeared to realise the intense importance of each man being absolute master of his horse's movements and paces.

Some regiments would have three-quarters of their horses galloping when they should have been trotting, and there was an enormous amount of jostling and unsteadiness in the ranks, which would all be preventible if the men really controlled their horses. In this respect the British regiment set an example which deserves to be copied by all the rest. There are, unfortunately, a number of Native Cavalry officers who seem to look upon this unsteadiness as something "swaggering" in itself—a sort of expression of the fearless, wild, irregular spirit, too

brave to require the trammels of discipline, which gave the old irregular regiments their superiority over regular regiments of Hindustan. There could be no greater mistake—the old regiments were only irregular in the sense of their being raised on a different plan ; their superiority was due to their being composed of better and braver individual horsemen, who preserved their control over their horses by means of the cruel but effective native bits and standing martingales. What other irregularity there was about them was in itself a defect, and one which would have had bad results, had it not been for the personal gallantry of their leaders and the inefficiency of their enemies. It cannot too often be insisted on that steadiness in the ranks is the first object to strive for ; every case of bumping, jostling, &c., is a worse than useless expenditure of energy, and eventually inevitably detracts from the cohesion of the ultimate shock. If half-a-dozen horses have worn them-

selves out prematurely by fretting they will lag behind in the advance, and the squadron will fail to deliver the boot to boot, wall-like charge, before which no enemy has ever been known to stand. It may indeed dash boldly in on its enemy, and then a mêlée will ensue, the issue of which will depend on the last close squadron in reserve ; but if the charge had been properly delivered, there would have been no mêlée, and consequently no reserve would have been required. It is unquestionable a matter of very great difficulty to obtain this steadiness of manœuvre with the material at our disposal. Country-bred horses are proverbial for their biting, kicking, and squealing manners, but very much more might be done than at present by stricter attention to a few points of detail, too frequently overlooked. We allude, first, especially to the biting. There is nothing, it is well known, that makes an animal more restive than a badly fitted bit, and yet there is no reason why a native regi-

ment that buys its own equipment should not have every horse as carefully bitted as in the German and Austrian services. Even with existing bits much might be done, by attention to the position of the bit in the mouth ; it should be so placed that when the curb rein is taken up, the chain should rest in the chin-groove. It is a simple rule of universal application, yet in fully 70 per cent. of the cases that came under our immediate observation, the chain was some two inches too high, and riding right on the sharp ridges which form the lower outline of the animal's jaw. Secondly, we would call attention to the seat of the riders : far too many of these were in the position known as the "extreme chair seat," that is to say, with their knees almost on a level with their horses' withers, and the lower part of the legs pressing against the horse's shoulders, in such a position that it was impossible for the rider to control the lateral movements of his mount. We know that

this seat is extremely fashionable in India, and also in certain hunting circles at home where we have seen it cause more "voluntaries" with refusing horses than we could count. Of course in the hunting field, if a man likes to adopt a seat which gives him no control over his horse, he is at liberty to do so ; but in the ranks of a cavalry regiment, he is not. Only that seat can be tolerated which enables the horseman to collect his mount between his hands and legs in such a manner that the latter simply cannot do otherwise than conform to his rider's wishes. We do not by any means advocate the other extreme, or "tongs across a wall" style, which used, many years ago, to be in vogue in some Cavalry regiments, but we simply want to see every man in Native Cavalry regiment sitting his horse in the way laid down in the Cavalry regulations, which is almost precisely the same seat as that adopted by most of our best steeplechase riders in England. The

same irregularity is not permitted in a British regiment, and it was only necessary to compare the superior steadiness of the latter with the others, to see the advantage of strict adherence to the regulation system. Now that every young officer on joining a Native Cavalry corps is compelled to go through a course of equitation in a British regiment, we hope, before long, to notice a marked improvement in the horsemanship of the Native Army, only it will require close attention on the part of officers commanding to prevent the three months' course degenerating into a mere waste of time. A great deal indeed requires yet to be done in British Cavalry schools before the latter are perfect. Equitation is taught too much as a matter of drill and by rule of thumb, than as a science ; a man requires, not only to know when to apply a given aid, but he should also understand why he should do so, and this kind of knowledge is not acquired by listening to a

riding-master's formula of "left rein and right leg, take them into the corners." Of all arts in the world, horsemanship is perhaps the hardest to acquire ; to some men, it is absolutely impossible ; it cannot be found in books, neither can it be attained by practice alone. A man with natural aptitude for the work may improve himself immensely by reading, but an ordinary individual can only be taught by the example and *viva voce* instruction of one who is not only himself an adept, but is able to explain why he is so, and the talent of being able to explain oneself is not usually found in the average capacity we have a right to expect from the ranks. It is an officer's position, and one that can only be properly filled by a man whose whole heart and soul is in his work. It is with the greatest regret that we notice the gradual decadence of true soldierly sports in the Indian Army,—sports which required a man to acquire a full control of his

horse, such as mounted combats of sword v. sword and lance v. sword. The average swordsmanship of British officers is of a very low order ; except amongst the riding masters, it is rare to find a man capable of defending himself at all in single combat. Most men when asked how they propose to do so in case of war, say at once that they would have recourse to their revolvers ; but they forget that it requires practice, and a considerable degree of practice too, to make sure of hitting a man from the saddle, and that the result of hitting him is by no means always sudden death. Whereas a well delivered cut or point with a sharp sword should be absolutely certain to disable him. It was not always thus in the Indian Army. In the Mahratta War, we had officers who, as swordsmen, were certain of killing their man, and who never hesitated to accept the challenges of the enemy's picked swordsmen ; and in the Sikh war and the mutiny, there were many others. Where are

their successors we should like to know ? It will be urged that now-a-days we have polo, pig sticking, paper chases, &c. ; but good as these undoubtedly are in the their way, they are by no means the same thing. In all it is the management of the horse at speed which is the main thing ; in swordsmanship, it is the controlling of an animal which usually wants to get away at speed. Let any one try the difference between letting his horse extend himself after a pig and collecting him when in the same state of excitement to a quiet canter and making him turn, half passage, and change just as the rider pleases. We fancy he will find the latter by far the more difficult task of the two.

LESSONS FROM LAWRENCE- PORE.

II.

IN our last letter we confined ourselves almost entirely to the two rudimentary points of bits and seats, and in this we propose to restrict ourselves equally to similar elementary matters, for it is precisely in these simple things that we find a distinct inferiority on our side relatively to the Germans. But, again, it is on these very points that the efficiency of the whole mass depends. Given uniformity of pace and straight riding, and there seems no limit to the number of squadrons which can be worked together ; given the reverse conditions, and a limit, and a very low one too, is soon reached. The first point we have to notice is this : riding down the front of well-trained regiments one is struck by the fact that every horse is standing square to the alignment, and that every rider has taken

up his reins and has his horse in hand ready to move off simultaneously with the others at the last sound of the word. But out here this sort of thing is very rarely seen : horses are standing in all sorts of positions at all sorts of angles to the front, and even when supposed to be at attention, the men are not ready to move off together as they should be. The consequence is, that when the word to advance is given, particularly if at a trot, horse *A* jostles horse *B*. *B* passes it on to *C*, who probably resents it by a kick. *D* gets restive and breaks into a canter, and, if the horses are fresh, the line degenerates into a surging, plunging mass, whose cohesion is already destroyed before half the advance is completed. As a rule, the blame for this condition of things is laid on the backs of the horses. It is said, and rightly, that our animals are more restive, younger, and, consequently, less trained than those of continental cavalries ; but we contend that this is beginning at the wrong end of things. We are quite pre-

pared to admit that the horses are more difficult to manage, but we maintain that if the rider of horse *A* had been sitting in a proper cavalry seat he would have had his horse square in the ranks, and, therefore would not have jostled horse *B*; and that had not *C* already been worried out of temper with an awkward bit, he would not have let out and frightened *D* into a canter. According to our own view of the matter, the individual riding of our men, both Native and European, is so far superior to that of the Germans, that we ought to be able to sacrifice the primary advantage of the better, because longer, training of the horse, and yet shew a marked superiority over them.

But this we are far from being able to do. A few years ago we were able to make the comparison between some of the best squadrons of British Cavalry and some German ones, which bore by no means the reputation of being the crack regiments of their own Army. The former went by

about half as fast again as the regulation permitted, in a plunging, jostling formation, similar to that known as a "Rudel" in the Austrian service, *i.e.*, an organised rabble. The latter swept by with an evenness of motion, conveying the idea of a maximum of power with a minimum expenditure of energy, the very reverse of the other. The individual riding of the former was far superior to that of the latter ; but a mere change in the horses would not have enabled our men to do much better than before, a complete change of system is required to effect that.

But it is not only the individual troopers who require to be taught to ride straight to their front—that certainly is the first condition of success ; but the second one is that their officers should be taught to lead them straight. This sounds very simple, but is not half as easy as it looks. It would astonish many a first-rate rider to find how very different it is to ride a bee line in a given direction by himself, and, with the

full sense of the responsibility of having a whole regiment depending on him on his shoulders. A perfect knowledge of pace and absolute confidence in one's self are the first requisites, and the two qualifications are by no means common. The importance of good troop-leaders seems hardly to be appreciated in Native Cavalry regiments ; absolute confidence in self is not one of the native race characteristics, and, therefore, it is all the more important that the difficulty of this duty should not be enhanced by giving the native troop-leader a showy young horse to manage, whose paces he can hardly control. In this respect the British regiment was a model to all at the camps ; the base troop-leaders keeping their line with a steadiness and precision worthy of all praise.

So far all the points we have referred to are within the scope of the existing regulations ; but if we are really determined to secure efficiency, it will be necessary to go a step further and attack the sacred

regulations themselves, and that too, somewhat more thoroughly than has hitherto been done. We have indeed adopted formations and ideas relative to the employment of cavalry masses in a pretty wholesale manner from the Germans, but this appears to us to be again beginning at the wrong end ; for instance, it is premature rather to adopt a formation of attack for division which is based on the assumption that the charge will be delivered boot to boot. Cavalry that can do that, can indeed afford to dispense with keeping two-thirds of their force behind the first line ; but we doubt whether we have yet attained to such a pitch of excellence as will enable us to dispense, to the same extent, with reserves as the Germans do. It must be remembered that the latter themselves have only thought fit to sanction the reintroduction of the old Frederician system after many years of consistent hard work, and in this hard work they have been assisted by the perfection to which this squadron system had already

reached before the new path was entered on. But the keynote of this squadron efficiency is felt in Germany to be the squadron column. It is true that we have adopted the name in recent regulations, but adopting a name is a very different and far simpler thing than assimilating the spirit of it. The German squadron is the ultimate tactical unit, as distinct and independent as a battery of Artillery. A German Cavalry regiment is composed of four practically independent units, each of which merely follows its leader ; and the four leaders, in their turn, look only to the regimental leader. With us it is different ; our squadrons are all tied to the base squadron, and hence the efficiency of the whole hangs, in the first instance, on the two men who may be giving the base. But these two may be, and generally will be, young officers, and though, after what we saw and heard the other day, we will not say that no young officers are capable of filling the posts ; yet, as a general rule,

it is not wise to place the whole of the responsibility for the regiment's efficiency on two of the junior officers. In the German regiment the responsibility for direction and intervals lies on the four picked men who hold the captain's rank, who, it must be remembered, represent the survival of the fittest out of a number of subalterns—a very different state of things it will be allowed. Besides, with the adoption of the German system, the necessity for the base itself would disappear altogether, and with it a whole host of other evils. Next to the defects above alluded to, we believe the base system to be answerable for more overcrowding and jostling in the ranks than anything else, and it is difficult to see how it can be otherwise. In striving to keep their dressing by it, men turn their heads inward, and unconsciously, in so doing, apply the outer leg, causing their horses to close inwards; presently they find themselves getting too close and try to turn outwards, but the next files are

upon them, and they cannon up against them. The disturbance, once started, undulates through the whole front of the line, getting more and more violent the longer and faster the advance, till, when at last the charge is sounded, the men instinctively open out to avoid the intensity of its effects, and the shock is delivered in open files. What would Frederic the Great have said to them all. His language on even less provocation used to be more forcible than polite. The base system, indeed is as obsolete as are the markers in the Infantry, and probably originated about the same century. No other nation in Europe considers it necessary to use either, even with their short service armies ; and why on earth should we, with men who ought to be double as well drilled as any of them,—seeing that we have more than double the time to do it in,—be compelled to adhere to this fossil remnant of a paleozoic age. It may be said that the book distinctly says that the head is not to be turned

to the directing flank, but that the dressing is to be kept by an occasional glance of the eye only ; but this is asking altogether too much from human nature. The scope of an ordinary man's vision is only about 120° , and unless he is absolutely taught to squint, which would form a new and interesting section in the drill-book, we do not see how he can be expected to enlarge the sphere of his vision 30 degrees on either side of his front. As long as the base is there, men will look to it ; suppress it, and teach them thoroughly Schmidt's favourite axiom that "Tempo ist Richtung," and they will soon learn to get along as well as the old Austrian Cavalry used to do, when there were not only no bases, but not even a squadron leader—for every officer rode in the ranks, and in the Uhlans carried a lance as well. It may, and probably will, be asked, why, if we admit the superiority of our individual riders, our own Cavalry should not be as good as that of the Germans ? Our answer is that it is the fault of our system. In Germany every

officer's credit, as an officer, and his future chance of promotion depend entirely on his success in bringing his men up to a given standard ; practically he may within wide limits adopt any system he pleases to bring about the result ; and hence, as the competition is intensely keen, by degrees they have learnt how to confine their attention to what are the absolute essentials of success only. One by one each fad has been tested and thrown aside, and at last only some three or four fundamental truths stand out, viz., that the horseman should have complete control over the horse ; that the horse itself should be thoroughly broken ; that men should be taught to ride straight to their front ; and, finally, that "*Tempo ist Richtung*," i. e., that if the time is rigidly adhered to, the dressing will manage itself. Thanks to this system, they are able, with a material which, in our opinion, is far inferior to our own, to attain a precision of manœuvre which is still far ahead of the best we have seen either in this country or at home.

III.

THE premature break-up of the Lawrencepore camp appears to have been due to the serious losses in horse flesh suffered by the 17th Bengal Cavalry on the last field day. This regiment, it will be remembered, has been only recently raised, and, consequently, has an abnormal percentage of young horses in the ranks. Under these circumstances, of course, no blame can fairly be laid to the charge of the officers of the regiment, and my only object in alluding to it is to call attention to the moral to be deduced therefrom.

Young or immature horses are not as capable of doing fast work under heavy weights as those whose frames and sinews are thoroughly set. Hence, if Cavalry are to be really efficient for the field, it is essential that the strength of the horses should be increased to such an extent as will enable the squadrons to move out on a full war footing with every man mounted on a fully developed horse. English horses appear to

mature more rapidly than country-breds, Walers, or Arabs, and hence we should fix the limit for the latter at not less than $6\frac{1}{2}$ years. This would entail an augmentation of between 20 and 25 horses per squadron, which would on mobilisation be united to form a dépôt squadron. Though at first the system would necessitate a considerable grant from Government to enable the requisite number to be purchased, yet after a time the economy effected by the avoidance of the losses which now annually occur from overworking the young undeveloped horses would more than repay the outlay. This is the system in vogue in the German Army, which is without doubt the most economically managed force in the world, and I strongly recommend its adoption in our own.

In Germany it has been recognised for the last forty years, that to put an undeveloped horse in the ranks is simply to cause his break-down in less than half the time that he would otherwise serve. Their

remounts reach the regiments as four-year olds, and do not take part in the regular heavy work of the regiments, with full marching order weights up, till they are rising seven. They will then continue to do the fast work required of them, and to stand the hardships of the manœuvres,—which are, if anything, greater than those of war—sometimes till the age of 24, but generally till 20. Had they been worked young, they would have broken down between 12 and 15, and more than double the annual number of remounts would be required to keep up the strength of the squadron.

The two years' training is a systematic gymnastic education of each individual horse, with special reference to the weak points of his muscular development. The squadron commander is hampered by no regulation, but he can take each horse in turn and develop him as he pleases. In this way by the time their education is completed, the horses have acquired a

uniformity of pace and endurance, which at once does away with the principal difficulty we have to contend with in trying to get our squadrons thoroughly in hand.

We believe it would pay both regiments and the Government if the latter were to advance the money requisite for the purchase of the horses at a low rate of interest, and for the regiments to repay the loan by means of an annual sinking fund, something on the lines proposed for the purchase of land by tenants in Ireland. Surely if it is worth while stretching a point to conciliate the discontented and seditious tenant farmer of Hibernia, the loyal zemindars of Hindustan, who furnish the backbone of Native Cavalry, deserve equal consideration.

CAVALRY ON THE BATTLE-FIELD.

THE efficiency of an Army may be looked upon not as the sum of the efficiency of the three arms but as their product ; where, therefore, there is a tendency to underrate the efficiency of one arm, the Army as a whole must suffer.

The battle-field is the place on which the Army is put to its most severe test, and if it fails there, it is but a poor satisfaction to reflect on the excellent service any one particular arm might have been capable of rendering under other conditions.

It is not intended in any way to under-rate the importance of good Cavalry in advance of the Army: the Cavalry actions, which will necessarily precede any pitched battle, may be considered as part of the battle itself, and here Cavalry meets Cavalry, and is led by its own leaders ; but on the battle-field, in commands of the three arms, it is still under the general

direction of leaders, almost invariably (in England), belonging to other branches of the service, to whom its qualifications are not as well-known. It has always been a fault in the British Army, that its officers have been too much specialists, not merely of their arm, but of the branch of that arm to which they belong. The horse gunner (though his position is only temporary) differentiates himself, from his comrade in the field batteries, and the field battery man from the garrison gunner; the light Cavalry from the heavier and the light Infantry from the line; "and yet there are not three artilleries but one artillery;" so likewise the Heavy is "horse," the Lancer "horse," the Hussar "horse," and yet there are not three "horses" but one "horse"; and so we might continue to paraphrase the artillery man's creed that appeared a few months ago in the *Army and Navy Gazette*.

To what extreme length this feeling may go, the example of Lord Cardigan,

looking on at the charge of the heavy brigade at Balaclava, shews us ; and there can be no question that the efficiency of the Army does not profit by it.

Bringing together large bodies of the three arms in large garrisons, or camps of exercise, does much to break down these caste barriers, but even here a great deal is lost if one arm of the service constantly finds itself sacrificed at field days to gratify the *amour-propre* of another.

That this is frequently the case, a few months at Aldershot will satisfy any unprejudiced observer.

No sooner does the Infantry fire commence than the Cavalry are hurried out of the way, and often remain for an hour spectators of a fight, where opportunities to teach them their actual importance on the battle-field (from which, too, the Infantry might learn how invaluable their support may be in time of need) are of constant occurrence.

Even when they do charge, no matter how favourable the circumstances may be,

they are almost invariably ordered back by the umpire, and frequently with a want of tact that is keenly felt.

Again and again in the course of a drill season cases may be noted, where Cavalry have favoured by the ground, the smoke, and the dust, charged so suddenly that the Infantry have not had time to fire more than a single shot before the horses were halted over their rifles, and yet the umpires have ordered them back.

The Cavalry are themselves very much to blame for this state of things, for many have allowed themselves to be convinced of their incompetence by biassed critics of other arms ; others have gone after strange gods and worshipped the mongrel deity known as the Mounted Infantry man ; whose efficiency under peculiar circumstances cannot be denied, but who under more normal conditions cannot be compared to the horse soldier proper. Of those who still believe in their own service, but few have taken the trouble to write on

the subject, and even the limited number of books and papers produced have been but sparingly read.

There is a great difficulty in the way of those officers, who not being linguist, are confined to English sources of information, for hardly a single pamphlet on Cavalry (from the successful side) has been translated into our language.

Out of the hundreds of translations from the German with which we were deluged immediately after the war, four-fifths at least were written by junior officers, with the impression produced by the apparently fruitless charges they themselves had assisted to repulse, still fresh in their minds. They did not attempt to account for the reason of the failure, why should they? The Cavalry were led by their own leaders presumably in the formations these leaders considered best fitted for the task before them, and how was an Infantry man to criticise them in the execution of their own special work.

Their subsequent writings are still inaccessible except to the reader of German, and here we often find considerable modifications of opinion.

There remains, it is true, the official history of the campaign, but the official history gives merely a record of facts without comment, and to supply the comment requires not only considerable labour, but an accurate acquaintance with the ground from personal observation.

Besides, either a Cavalry officer or an Infantry officer writing about the action of his own arm against the other, is always open to the charge of professional bias ; and hence, an excuse may be found for the attempt on the part of one belonging to neither branch of the service, to view the matter without partiality, favour or affection for either.

A want of national pride is not, as a rule, a characteristic of the average Englishman, least of all, in anything relating to horse flesh, yet curiously enough, in

military matters, we have shewn an almost invariable readiness to be guided by the experience of other races in preference to those of our own.

Yet in adapting a system of tactics to a nation, no worse error can be made, for history conclusively proves that, whenever the attempt has been made to treat the individuals of an Army, without reference to their national idiosyncrasies, the result has almost invariably been disastrous, our line tactics copied from the Prussians being about the only exception.

We can understand the Germans, and Austrians, beaten and crushed by Napoleon, attaching undue weight to the methods and means by which he defeated them, but we, as comparatively disinterested spectators, and with in many cases diametrically opposite experiences to go on, ought to have known better than to have followed their example.

In the seven years' war, the Prussian Cavalry were practically the arbiters of the

battle-field at Zorndorf, Seidlitz's squadrons destroyed half the Russian Army at Rossbach, the same leader annihilated the French, and at Hohen Friedberg, the Bair-euth Dragoons (six strong squadrons), broke 21 battalions of Infantry, took 4,000 prisoners, 66 stand of colours, and 5 pieces of artillery, yet fifty years afterwards we find it accepted almost as an article of faith all over the continent, that Cavalry cannot face the bayonets of a square.

Now in the fifty years which had elapsed, no essential change whatever had been made in the armament of Infantry, and so far from its drill and discipline having improved, there is every reason to suppose that it had gone quite the other way ; the Prussian Infantry, who fought at Mollwitz were trained to deliver five volleys per minute, and we may be sure that every effort was made by their enemies to approximate to the same rapidity.

But when the long service armies of the continent had practically ceased to exist,

this rate of fire, demanding as it did, the most constant exercise and extraordinary discipline could no longer be maintained, and we doubt whether in 1808 there was a single battalion in all Europe capable of firing even three rounds in the minute, hence, the conclusion is obvious, that if such Infantry as the above could, as a general rule, stop Cavalry, the fault must have lain with the Cavalry themselves.

Let us look more closely into the nature of the tasks performed by Frederic's horsemen.

In the seven years' war, the Infantry universally carried a smooth-bore flint lock, firing a heavy powder charge and a 12 to 14-bore spherical bullet, the discipline was everywhere of a high order, and there being no particular inducement to open fire at long ranges, but, on the contrary, the strongest possible one for reserving it, we may assume that it generally was so withheld till the enemy were within about 100 yards.

How the importance of these facts have generally been overlooked, and, considering

what a race of sportsmen we are, it is difficult to understand how this has come about.

No officer with Indian experience needs to be told, that if you want to stop a charging tiger, a Martini-Henry rifle (military cartridge) is not the thing to do it with, but where the distance is too short to make accuracy a factor of much importance, a 12-bore smooth-bore is much better.

To the best of our recollection, the initial velocity of the old Brown Bess (a 12-bore) as determined by Hutton's pendulum experiments at Woolwich, about 1770, was rather over 2,000 feet a second, which is practically the same as that of the shorter 12-bore of to-day with a 5-dram charge, and hence its effect in stopping a charging animal must have been just as much greater than that of the Martini, as we know that of the latter to be.

Further, the normal square formation of those days on the continent, gave a depth of six ranks, and therefore the front of a square in which the men were drilled to fire

even three rounds a minute, could deliver in the last 20 seconds of the attack, *i.e.*, the last 200 yards of the rush, at least as many rounds as a two deep square of to-day (taking its rate of fire at 9 rounds a minute, which is three more than the number of aimed volleys that the best drilled Infantry in Europe can get off), and with far greater stopping effect.

Yet in spite of this, Zeithen and Seidlitz practically broke everything they rode at; at Zorndorf, indeed, the Russian Infantry actually stood sixteen deep, and we may be pretty certain that every man managed to let off his piece somehow; but Seidlitz's men fairly hewed their way through them.

But though as we have seen above, the conditions of the fight changed but little, and that little in favour of the Cavalry, yet no such achievements can be credited to the French Cavalry of the Napoleonic era.

The truth is, that, as a whole, the Cavalry of France were of an extremely inferior description. Of all the arms of the service,

it suffered most from the destruction of the aristocracy ; and the utter exhaustion of the country districts produced by the reign of terror, rendered the supply of horses of the requisite stamp a practical impossibility, and though subsequently, Napoleon mounted almost the whole of his horsemen, at the expenses of the countries he conquered, it was not till 1807 that he reached the sources from whence the best continental remounts are drawn (*viz.*, East Prussia and Hungary). At the same time, as the original volunteers of the Revolution began to be replaced by the conscripts of the empire, the dash and courage of the Cavalry declined still further, till, as we mentioned above, it began to be accepted as an axiom, that the horses would not face the bayonets of a square, that Cavalry had done its duty, when it had driven Infantry into square, and had drawn its fire, and finally that the proper pace of Cavalry for the charge was the trot ! Could Cavalry fall lower than that ?

How thoroughly this spirit had penetrated the French cuirassiers, their conduct at Waterloo shows ; who, after reading Mercer's or Kennedy's account of their charges that day on our squares, can doubt that had they ridden home, some, at least of our squares, must have gone down ?

Let us take another instance, showing what they achieved against raw troops.

In the pursuit of Blücher's Silesian Army from Vauchamps in February 1814, the French Cuirassiers had succeeded in getting right across the Russians line of retreat.

“ A hostile regiment of cuirassiers formed to make an attack on three Russian battalions at our head. These happened to be the newly-formed battalions just arrived. Their commanding officers halted and made ready ; they allowed the enemy to advance to sixty paces before they gave the word ‘ Fire.’ ”

Instead of the 1st and 2nd ranks of the leading columns only giving fire, the whole three battalions fired at once, and exhibited

the spectacle of three 'pôte à few.'— Nothing hindered the cuirassiers from breaking into the closed battalions (not squares), for not a horse or a man had fallen, but they had turned about." (Note. b. Müfflings Aus Meinem Leben, Part 1, Section II, page 134.) But though all this time, our own experiences were directly opposed to those of the French, our writers continued to impress on us even then the comparative uselessness of the arm. Surely the horsemen who broke the French squares at Salamanca and Waterloo, deserved a better recognition of their services, than to be classed with the cuirassiers of Vauchamps?

The breaking of the Imperial Guard squares at Waterloo deserves more attention than has usually been granted to it; for there can be no doubt of the extremely high quality of those troops. Not quite a case of the survival of the fittest perhaps, for both bullet and bayonet have a habit of seeking their billets in the bodies of the bravest; but still, war-seasoned to a degree,

we can now-a-days hardly realise ; these were not the class of troops to be shaken by the mere noise of galloping horses, yet before the charge of Vivian's squadrons, they went down like standing corn before the rush of an earthquake wave.

Then during the long peace on the continent, we were reaping constant experience in India.

We are inclined, as a rule, to under-estimate our eastern successes, presumably owing to the colour of our enemies, but surely, no one will deny that the Sikhs, born soldiers every man of them, were at least as hard a foe to conquer as any army of European conscripts.

Moving with a precision equal to that of our best Infantry, then, probably the best drilled in the world, they were also remarkable for the rapidity of their fire, and when broken by our horsemen, they were just as expert in defending themselves with their short sharp swords, as our Arab foes proved to be in the Soudan ; yet they were

practically invariably ridden down by our Cavalry, no matter in what formation they stood to receive us. At Sobraon their entrenchments even proved no protection, for a regiment of native horse, having ridden over the first two lines, absolutely jumped their horses into the bridgehead itself.

Though the mutineers were not equal in individual courage and discipline to the Sikhs, still they were by no means a foe to be despised, and, as a rule, received our charges with steadily delivered volleys, but with even less success than the latter.

But in both these campaigns, the fire-arm in use was still the old smooth-bore ; let us take a few instances in which the Infantry carried the muzzle-loading rifle, which possessed almost equal accuracy and considerably greater stopping power than the present breech-loader, and on whose qualities just as exaggerated expectations were founded, as have recently been prophesied of the breech-loader.

The greater importance of the struggle

on the Bohemian theatre of war in 1866, has caused too little attention to be paid to the battles which took place on the Italian side ; but the successes of the Austrian Cavalry at Custozza deserve more than passing mention.

Prince Hohenloke in his "Briefe uber Cavallerie" (page 35), gives the following summary of its action taken from the Austrian official accounts :—

"At the commencement of the battle of Custozza, the two Austrian Brigades Pulz and Brigonowitch, together fifteen squadrons (average strength of squadrons according to morning states, 150 to 160 horses) ; hence, at the outside, 2,400 men attacked the Italian Infantry Divisions, Humbert and Bixio in front ; they rode down the skirmishers, broke several squares, and carried terror and confusion into the most distant line. In the highly cultivated Italian fields, most of the Infantry battalions found cover behind the rows of trees and opened a deadly fire on the Cavalry

as they retired. But the result of this attack was to disable 36 battalions for the whole day.

“But the Cavalry was neither destroyed nor even lamed for the whole day (the first attack took place at 7 A. M.), they held these divisions in check, by their confident bearing, thus preventing them going to the help of the rest of the Army, and at 5 o'clock in the afternoon, they attacked a second time, and spread such terror amongst the Infantry that whole battalions came forward to lay down their arms to them. Thus, these 2,400 Cavalry held in check all day upwards of 25,000 Infantry, and eventually made more prisoners than the whole of their strength.

“At another point on the battle-field, 3 divisions (Züge) * of Sicilian Lancers, by a timely attack, broke and destroyed four out of five battalions of Infantry ; true, their losses were heavy, but 2 officers,

* The Austrian Züge would be about 40 strong.

84 men and 79 horses, is not a prohibitive price to pay for the destruction of four battalions, and for the panic spread amongst the remainder, by which the enemy was prevented from establishing himself in a position, whose loss would have entailed the loss of the whole battle ?

“ These results were obtained in perhaps the most difficult country in the world, enclosed by walls, gardens, vineyards, &c., which frequently restricted the Cavalry to the roads. ”

From the battle of Kœniggrätz, he also quotes an example, which came under his personal observation and which we reproduce here, for it is precisely one of those cases of Cavalry, seizing their opportunity so promptly, as to give the Infantry no time whatever to make use of their arms, and hence even had the charge been against repeaters, the result would have been the same. An Austrian battalion, which had pierced the whole of the Prussian line in the “Swiep Wald,” came out into the open on

its northern border ; a single squadron of the 10th Hussars (not more than 100 strong) charged it, and took the whole battalion, viz., 16 officers, 665 men prisoners, and that too without suffering any loss at all, the attack was so sudden.

Now, though these successes were obtained against the muzzle-loading rifle, yet for several reasons they are worthy of our attention.

It must not be forgotten that, on its first introduction, its partisans were so satisfied with it, that they prophesied destruction to everything that ventured within 800 or 1,000 yards, just as confidently as those of the new rifles do now. But both parties reason on insufficient data, they ignore almost entirely the nervous constitution of the men who have to do the shooting, it seems almost superfluous to point out that the conditions of the battle-field are not those of the practice ground, but actually it is not so, for the tendency of our modern English tacticians is to neglect this dis-

tion, and to devote more and more of the time which should be spent in disciplining the men to fruitless efforts, to attain a degree of accuracy in individual fire on the range which is utterly unobtainable in action.

It is impossible to hope, with European armies, to emulate the accuracy of fire in the field, of races like the Boers, was for the most part depend for their living on their rifles, with them the judging of distance, &c., is done just as instinctively as the slingers and stone throwers of antiquity used to do it ; but to attain this instinct in the short service armies of to-day, is utterly and entirely impossible. Even if distance and trajectories had nothing to do with the matter, there are the hearts and nerves of the human beings to be reckoned with to hit an individual man at 600 yards, one's sights must be as correctly aligned as the cross hairs of a theodolite in levelling or traversing, but we wonder what the value of a surveyor's observations would be, if made

under the conditions under which an Infantry soldier is expected to aim at Cavalry.

Discipline and discipline only, is the one thing on which any reliance can be placed; not the fiction which we call discipline now-a-days, but the iron discipline of the Peninsula and Waterloo, which enabled the thin red line to await in perfect silence and with shouldered armies, the onset of the terrible French column of attack, whose mere appearance was frequently enough to frighten other Continental troops off the ground.

But with short service, the adoption of extended order formations, and worst of all, the spread of democratic ideas, this class of discipline is daily becoming more and more rare.

It is worthy of remark that in 1859, the officers of the Austrian Army in Italy were struck by the difference between the steadily delivered volleys of the smooth-bore days, and the hasty, ill-regulated fire which the same troops delivered as soon as

the long range rifle was issued to them. Yet all that time the Austrian Infantry were in point of discipline and length of service about the best on the Continent.

The cause of this unsteadiness is not hard to find, it was merely the alarm felt by the men, when they found that the exaggerated results they had been led to expect were not realised in practice.

If the mere increase of range, entailing as it necessarily did, the addition to the rifle of sights to be fumbled with, caused such a marked fall in the fire discipline of the army, it is obvious that the difficulty to be overcome now-a-days with both sights and increased rapidity of firing to be controlled, is much greater.

Finally, in estimating the value of results obtained against the muzzle-loading rifle, we have yet to take into account the fact that, all these charges were delivered against closed formation, on squares six deep, hence if we take the killing power of the bullets to have been only equal instead of

as they actually were, superior to those of the breech-loader, and if we allow that the breech-loader fired six times as fast as the muzzle-loader and with equal accuracy, then it follows that one-sixth the number of Infantry given in the examples above would have poured out the same number of bullets as were actually delivered, and presumably with no better result.

Instead of 2,400 Cavalry, shattering 25,000 Infantry, they would only have shattered about 4,000, yet still the game would have been worth the candle.

But the comparison is still most unfair on the Cavalry, for horses can be got to gallop at a line of skirmishers lying down far more readily than at the bayonets of a square, and it must be admitted that the controlled volleys of a six deep square must necessarily be more deadly to face than that of a single line delivered six times as fast.

Besides, it is now an ascertained fact on the range that when a certain very moderate

rate of fire, depending on the discipline of the troops concerned, is exceeded, the proportion of hits begin to vary inversely with the number of rounds fired.

(This rate with the best trained troops does not exceed six rounds a minute, only one round a minute more than Frederic the Great's Infantry fired with their old muzzle-loaders.)

Turning now to the question of the actual results obtained by Cavalry against the breech-loaders, we admit that the results of the encounters between the Austrian and the Prussian needle gun were far from encouraging for the former.

The accounts given by the two opposing armies differ so widely that it is almost impossible to bring them together, yet it appears that where the Austrians failed, it was principally due to want of proper preparation of the attack, and to accidents of the ground which was not sufficiently reconnoitred. On the other hand, we attribute the success of the Prussian Infantry to the

intrinsic value of the men, and not to the technical qualities of the arm they carried, for the needle gun had neither long range, accuracy, or stopping power.

Thus in the great Cavalry charges at Sadowa, the circumstances were all against the Austrian horse, for the attacks had to be delivered uphill (slope about 2°) over heavily sodden ground, and on horses not exactly in galloping condition, for hardship and short rations had told severely on them.

Instead of a shaken foe, they had to ride at the steadiest of Continental Infantry flushed with a hitherto victorious advance, and who were not in the least taken by surprise.

Nor must the fact be overlooked that the Prussians had been undergoing, during the preceding six hours of fighting a rigorous process of selection. Of course, the bullets had chosen their victims with their usual impartiality, but in the long advance up the hill from the valley of the

Bistritz. Ample opportunity had been afforded to everyone whose heart was not in the right place, to withdraw from the fight for the remainder of the day, and we can be pretty certain that there was not a man on the ridge that did not wish to be there, besides the excitement and novelty of the situation had worn off, and the fire was actually delivered (according to the testimony of eye-witnesses) with unusual precision and coolness.

The actual amount of damage that under these conditions they succeeded in inflicting on the Prussians, it is impossible to decide on the contradictory evidence ; one thing, at any rate, they proved, and that is, that there is still work for Cavalry to be done on the battle-field, which no other arm can do as well ; for even their enemies admit that their action saved the Austrian Army from what would otherwise have been almost as crushing a calamity as Sedan.

But it is from the Franco-German War in particular, that our principal lessons are to

be learnt, here the evidence is much clearer and the condition of armament practically similar to those of the present day.

The opponents of the Cavalry arm have generally fastened on the French failures against German Infantry, and ignored the German successes against French Infantry, notwithstanding that the latter were armed with a far superior weapon.

As they usually base their arguments on the nature of the weapon and not on that of the man who holds it, this appears to us rather an unfortunate line to take.

Let us begin with the French first. Their Cavalry was, it is well known, far from first class; it was indifferently mounted, insufficiently trained, and unaccustomed to act together in masses, or in combination with other arms, and was at least as deeply bitten by the terror of the new arm as all the other Cavalries in Europe.

Let us take the charges in order—

The first took place at the battle of Wöerth (6th August), and was delivered

by Michell's Brigade, which in common with the rest of the Cavalry of MacMahon's Army, had been suffering from want of forage for some days and was far from being in condition to face a 1,200 yard gallop over sodden clayey ground (for just as before Sadowa, exceptionally heavy rain had fallen on the preceding night).

The Prussians (XIth Corps) had just succeeded in carrying the farm of Albrechtshäuser and the village of Morsbrunn, and were in the act of changing front half right; before them, the French were retreating in considerable disorder, when suddenly Michell's Brigade appeared on the scene. What followed had better be given in the words of the Prussian official, which can hardly be suspected of undue bias towards the French Cavalry: "The field of attack, which had apparently not been previously reconnoitred by the Cavalry was, for them, extremely unfavourable, because single lines of trees, felled close above the ground, and deep ditches, hin-

dered the movement of closed masses, whilst the Infantry had a clear field of fire over the otherwise open and gently sloping ridges."

"In first line came the 8th Cuirassiers in Squadron Columns, followed on the right by 3 Squadrons of the 9th Cuirassiers in line, the 4th Squadron in Column of Divisions behind ; still further to the right rear were the 6th Lancers."

"At first, with no enemy in sight, this mass of over 1,000 horsemen moved forward at random towards Morsbrunn, bearing heroically the Infantry fire directed on their left flank from the Albrechtsbäuser, whilst seeking to gain the enemy, still occupied in the act of forming at Morsbrunn."

"The latter were preparing to advance with the 32nd Regiment in front, the 94th in second line, the 2nd and 4th Companies of the former regiment were on the heights north-west of Morsbrunn, the 1st and 3rd Companies were still in the streets of the

village. The 2nd Battalions of both regiments had already debouched on the left of the place, the 32nd in two half battalions in line at close intervals, the latter in company columns ; the 3rd Pioneer Company was likewise present. The Fusilier Battalions of these regiments were still to the south of Morsbrunn, the companies of the 80th Regiment coming from the "Bruch" mill were only approaching the northern entrance of the village."

"When the first line of troops appeared on the heights, they were received by so violent a musketry fire from the copses, south-east of Eberbach, that their further progress was impeded for the time being. They were then charged by the hostile masses of horse."

"The Infantry might have found shelter in the contiguous vineyards and hop plantations, and some trees in front also offered immediate cover."

"They received the venturesome attack, however, just as they stood, and without

forming either battalion or rallying squares in those formations which permitted of the greatest effect being obtained from their fire. The 8th Cuirassiers delivered their first charge upon the Infantry which had just debouched from the village. Here the Cuirassiers came under the simultaneous fire of the two companies and of the two half battalions of the 32nd Regiment, which latter had deployed and changed front half right."

"In a few moments the Cuirassiers suffered fearful losses ; the remainder charging past the right and left of the Infantry and partly breaking through the skirmishers of the 2nd Company, endeavoured to gain the open ground through the village or round its northern side, but fell foul of the two companies in the village streets and the skirmishers of the 80th Regiment on the northern side."

"The 9th Cuirassiers fared no better."

"They were received at a distance of 300 paces by a well-aimed fire from the Pioneer

Company, which was posted in a broad group on the left of the Infantry. One angle of the group was broken by the Cavalry as it charged by :—

“The Lancers forming the last line of attack struck the left wing of the Prussian Infantry. The 8th Company, 32nd Regiment, wheeled to the left, and deploying into line delivered a volley, followed by an effective ‘Schnell feuer’ upon the charging Cavalry ; those who passed scatheless, pressed forward past Morsbrunn.”

“This chivalrous advance of the Cavalry had enabled the French Infantry of the extreme right wing to withdraw unmolested.”

The advantage purchased, therefore, by the loss of some 750 men, was the relief of the retiring French Infantry from pursuit, and the gain of time enough to enable the latter to establish themselves in a fresh position, from which they were afterwards able to renew their offensive against the Albrechtshäuser which they retook, causing

a retrograde movement along the whole of the Prussian left wing. Then, however, under the pressure of a renewed advance, the French finally gave way, and the Prussians, at last, established themselves in the Niederwald.

In all we may take it that the Cavalry postponed the decision of the day for three full hours (for it must be remembered, it was the advance of the Prussian left that decided the battle), and if we estimate what those three additional hours cost the Germans, or what it saved the French in the pursuit, for had the Germans had three hours' more daylight, the number of prisoners would have been far greater than it actually was, we think it will be admitted that the price paid for it was not too high.

And yet this charge was made under such unfavourable conditions that success could hardly have been hoped for. In addition to the difficulties of the ground already mentioned and its saturated condition, there lay a hollow road right across

the line of their advance. The distance too was considerable, namely, 1,500 yards, and was covered "at the most rapid pace" and under a flanking fire from the Albrechtshäuser. As two out of the three regiments appear to have been in column, in this part of the action at any rate, this fire must have seriously loosened their order.

Finally, it appears that the charge itself was delivered in column ; at least, in the official account no mention is made of the 8th Cuirassiers and 6th Lancers deploying, and if this actually was the case, then the elements of a disaster were all present.

Let us assume, on the contrary, an equal body of well mounted, first rate Cavalry under an experienced and resolute leader, allowed proper latitude by his Commander-in-Chief. To begin with, he would not have formed up behind the corner of a wood, within range of the enemies' shells (which occasioned severe loss to Michell's Brigade) and from which he could not

escape except over ground cut up with deep trenches, &c., but would have chosen a position under cover, from whence he could have delivered an effective blow on the enemies' flank.

Such a position might have been found in the valley of the Eberbach, near where the road from Gunstett to Laubach crosses the streams, and an outpost on the steeple of the village of Forstheim could have kept him informed as to the progress of the attack.

It is scarcely necessary to remark that he would have previously reconnoitred the ground, but even had he failed to do so, the ground is so much clearer than to the northward that the consequence of neglect would not have been so fatal.

From this position the Prussian line could have been approached under cover to within about 150 paces, from its right flank, and had the charge been delivered, with the Lancers in first line at open files, the 8th Cuirassiers in second and the

remaining regiment in third, the results obtained would probably have satisfied any Cavalry leader.

The charge of Bounemain's Cuirassiers hardly deserves discussion, for had the Prussian only been armed with slings and bows, the Cavalry would have been equally powerless against them in the vineyards and orchards in which they were posted. But even here time was gained by the French to organise another Infantry counter-attack, which must certainly have caused considerable loss to the enemy.

The battle of Spicheren-Forbach on the same day offered no opportunity to the French Cavalry ; with the exception of a couple of squadrons on the left, who, acting as mounted Infantry, did good service, no other chance presented itself ; but their action on the 16th August at Vionville, though unsuccessful, deserves the closest study.

Their first charge on that day took place about 11-30 o'clock, and its object was to

cover the left flank of Frossard's (2nd) Corps which was beginning to retire.

The following account is taken from the late Colonel Kœhler's pamphlet "*Die Reiterei in Der Schacht—Vionville—Mars la Tour*" (page 15).

"At this time, there stood between Rezonville and Villiers au Bois the following regiments of French Cavalry:—The 3rd Lancers and 3 Divisions,* each of two Brigades or 1 Lancer Regiment, 4 Regiment of Chasseurs, 4 of Dragoons and 4 Cuirassiers, in all 13 regiments, counting (inclusive of previous losses) about 5,000 horse."

"On receiving General Frossard's order to charge "*Des que l'occasion se présentera*" General Desvaux (Commanding the Cavalry Division of the Guard) ordered General Du Preuil (3rd Brigade one Regiment of Cuirassiers, one of Carabineers) to take his Cuirassiers and move up in support of the 3rd Lancers to the south of the

* The Cavalry Division of the Imperial Guard—The Division "*Forton*" and the Division "*Valebregue*."

Chaussée. The movement was executed, and the regiment drawn up parallel to the ridge and a little behind it, under cover from the enemies' fire."

"About 11-30, according to the French accounts the fire which had hitherto been very lively, moderated ; and one saw the French skirmishers, who were retreating at a run and without order, appear on the ridge. They were closely followed by the Prussian batteries, which immediately crowned the ridge and opened fire on the French squadrons. Two squadrons of the 3rd Lancers advanced, but having had no definite objective assigned to them, they presently retired."

"General Du Prenil reported to General Desvaux everything was in retreat, and the same moment he received orders to attack."

"His troops were so far from the Prussian Infantry line (2,500 paces) that failure was certain, unless their attack was prepared by artillery fire. This objection was raised, but General Frossard replied—

‘ Attack at once, or we are all lost.’ ”

“ Accordingly General Du Prenil moved off the first échelon at the gallop and followed with the 2nd at 150 yards distance, but as its pace appeared too great, he ordered them to reduce it and rode with his staff on one of its wings. Meanwhile the first échelon still moving at full speed had left the second far behind it. The Prussian skirmishers formed rallying squares.”

“ The attack had got well within range of the Infantry when suddenly its course was checked by the debris of De Fortors’ camp, biscuit boxes, baggage waggons, etc., which had been abandoned in the morning scare. Thus hindered in its advance, the first échelon was compelled to give ground to the left, and the more they went on, the worse became the pressure resulting from this deviation, till the two squadrons were thrown into disorder. When, therefore, they were received at 30 yards’ range by a terrible fire, the whole line broke and poured into the defiles between

the Prussian squares. The Colonel and his Adjutant broke into one square, but the remainder receiving fire from all sides were compelled to retire and were destroyed."

This unmasked the second échelon ; it was received at 300 yards with independent fire, which emptied a few saddles, but continued its advance in good order, as the firing checked for a moment, " but at 100 yards the Prussians answered the command charge ! with such a terrible rain of bullets that half the line was dismounted. The remainder came in collision with obstruction, or fell into a ditch 10 paces in front of the squares." So far the French account (see Colonel Bonie's pamphlet, page 45, Eng. Translation.) The Prussians give the following story—

" This charge struck in first line on the companies of the 10th Infantry Brigade who were pressing forward east of Flavigny. The 2nd Battalion of the 52nd Regiment under Captain Hildebrandt, stood prepared to receive it in line with

shouldered arms ; at 250 paces they opened with independent fire, before which the enemies' charge broke powerless. The leader of the 52nd, Captain Hildebrandt, is killed ; to the left and right other bodies of the enemies' horse rushed by—the rear rank turned about and fired after them. The Fusilier companies of the 12th Regiment on one side and the companies of the 6th Infantry Division, between Flavigny and the Chaussée on the other, received them with an equally accurate and steady fire, and only a small remnant of the Cuirassiers escaped by flight."

The chief point to be noticed in the above is, that the Prussian account actually enhances the performance of the Cavalry, for, instead of attacking rallying squares, in which the nerve of the men is sure to have been shaken by the hurry and also by the admission of their own weakness, which is implied by its being considered necessary for them to run into groups for mutual support, they were

actually charging intact Infantry in line, a far more difficult task.

It is true that the Prussians do not admit that their line was penetrated by a single individual, but the fact that their commander was killed, shews that the Cavalry at least got pretty close.

Their failure under the circumstance to break perfectly unshaken Infantry, supported by Artillery and protected in the front by obstacles and not taken by surprise, proves nothing in favour of the breech-loader, for the result would have been the same, and indeed was the same (the 28th at Quatrebras) in the days of old Brown Bess. But to continue the narrative. "To cover the retreat of the horsemen, Marshal Bazaine ordered up a battery of the guard, and himself accompanied it. Some 20 men of the 17th Prussian Hussars who were pursuing the defeated Frenchmen, suddenly turned on the battery, and in spite of the last volley from the latter at 80 paces, penetrated into it, and cut

down almost the whole of the detachments, in spite of their desperate resistance. The Marshal and his staff were even compelled to draw their swords in self-defence."

To have captured Bazaine, would, indeed, have been perhaps the most unfortunate thing they could have done, but under normal circumstances to capture the Commander-in-Chief of an army in this manner, literally to tear out its heart from its midst, would be an achievement of the highest merit to the Cavalry concerned.

"The 11th Hussars, delayed in their advance by the swampy ground east of Fravigny, did not succeed in taking part in the pursuit, but riding up the slope of the ridge (311) south of Rezonville, they fell upon and rode down and dispersed, swarms of French Infantry and Cavalry."

This, however, was in itself no mean performance, and since in the whole fight the regiment only lost 1 man and 8 horses killed, and 1 Officer, 18 men and 5 horses wounded ; was obtained with very little loss.

“ Heavy flanking fire from the Chaussée, Rezonville, Vionville, and the retreat of the 17th Hussars compelled their retirement.”

Shortly after 12 o'clock, when the 2nd French Corps was retreating, partially in considerable disorder, the 6th Cavalry Division received orders from the General Commanding the 3rd Army Corps (v. Alvensleben) “to advance towards Rezonville as the enemies' Infantry were retiring in confusion.”

But before the division could be brought up, a change in the situation took place. The French strongly reinforced, resumed their advance, and hence it was not to pursue beaten troops, but to parry a threatened thrust that the Divisional Commander decided to bring up both Brigades and to direct them on the dense masses of the enemy advancing from Rezonville.

The advance was made in the following order—

14th BRIGADE.		15th BRIGADE.
15th Lancers		3rd Hussars.
6th Cuirassiers	3rd Lancers	16th Hussars.

On the right the 15th Brigade with the 3rd Hussars on the right and the 16th Hussars a little held back to the left as a kind of second line. On the left the 14th Brigade with the 15th Lancers in front, two squadrons of the 3rd Lancers on their right rear, three squadrons of the 6th Cuirassiers on their left rear. The advance was made in squadron columns at deploying intervals.

The 15th Brigade did not succeed in attacking, they only advanced at the trot and did not even deploy, because, owing to the pressure from the right, the intervals were lost, and the Brigade became a dense mass of squadron columns at close interval. Received in this highly unfavourable formation by heavy rifle fire from thick lines of skirmishers, Colonel v. Schmidt (on whom the command had devolved owing to General v. Rauch having been wounded) seeing no prospect of success sounded the halt, and having re-established the intervals by closing to the flanks, after

a few moments' pause, wheeled about by divisions (*Zügs*) and retired at a *walk*.

Under continuous and most violent Infantry and Artillery fire, full intervals were taken, still at the walk and only when this movement had been satisfactorily completed, was the trot sounded.

The 3rd Hussars lost 80 men and 100 horses. The 16th not quite so many.

The 14th Brigade also failed to attack. The 15th Lancers were thrown into disorder by portions of the retreating men of the 17th Hussars who were being pursued by a squadron of French Hussars.

The disorder was promptly remedied, and to steady the young soldiers, they were first formed up with the same steadiness and precision as on the drill ground, though in effective range of the enemies' Infantry.

The 6th Cuirassiers failed to find an object to attack, as the enemy had renounced his offensive and his advanced parties, ran and threw themselves into the ditches of

the Chaussées where they were practically inaccessible.

The whole movement, however, had not been without considerable influence on the course of the battle. The enemies' Infantry renounced their offensive and retired to their shelter trenches and did not reappear again, their batteries also retired, and the 5th and 6th Infantry Divisions were relieved from their seriously threatened situation.

We would only notice here, 1st, that the German Cavalry were in those days not nearly so highly trained to manœuvre in masses as they are to-day, and that, therefore, the probabilities of the confusion evident in the above manœuvre recurring in the future are proportionally reduced, and, 2ndly, the very trifling losses* actually suffered, in spite of the length of time to which the Brigade was exposed, both to Infantry and Artillery fire. The rest speaks for itself.

* The Division suffered throughout the day from shell fire and charged again at nightfall, yet its total loss only amounted to 300 horse, or about 10 per. cent.

We now come to the great event of the day, viz., v. Bredow's celebrated attack ; though often described, there are still some point about it which have escaped attention. The following account of this charge was kindly communicated to the writer by the officer who suggested, and afterwards carried the order for it ; it is specially interesting as shewing how the course of a great action may be influenced, by the judgment of even a junior officer and as the officer in question belonged to the Infantry, and is a firm believer in his own arm of the service, it cannot be questioned on the score of partiality to the Cavalry.

On the day of the battle, this officer, then a Subaltern of about 8 years' service, was detailed as galloper to the General Commanding the 6th Division ; somewhere between 1 and 2 o'clock, he and his chief took up a position on the high ground west of Vionville where they were under a heavy shell fire ; he was the only officer remaining with the General, the remainder

of the staff having been despatched with orders, etc., to different parts of the field.

In front of them just in advance of Vionville, lay the remnants of the 24th Regiment of Infantry, extending in a single line of skirmishers from the Chaussée to the Roman Road, they were without support or reserve of any kind, and had no hope of receiving either for many hours, their ammunition was running low, and the men were completely exhausted ; (it will be remembered that the heat this day was intense and the ground hard and dry).

Opposite them and some 1,000 yards distant lay the French third Division drawn up in two lines and deployed ; and supported by the whole of the Corps Artillery of Canrobert, in all 9 Batteries and 15 Battalions ; of course, at the time, he and his General were unaware of the exact strength of the French, but the appearance the latter presented was that of an almost continuous double line of deployed Battalions backed by Artillery.

Suddenly the General turned to his aid and said, "I am so tired, I am going to sleep ; call me if you notice anything," and dropping his reins on his horse's neck, he fell fast asleep.

Shortly after, his galloper saw a large body of French Cavalry which he estimated at, at least, a division, ride up and take post in the angle between the Roman Road and the country road leading from Rezonville to Villers aux Bois ; and feeling that if they realised the condition of the Prussian Infantry and charged, the latter were in no position to stop them ; he woke his chief, and having pointed out the new arrivals, he proposed that he should go at once and call on the nearest Cavalry to charge first, and thus anticipate them.

The General at first objected that to charge unshaken Infantry was impossible, but soon realising the state of affairs, he said, "Well, go and find the nearest Cavalry and call on them to assist us."

The galloper accordingly rode off, and on

his way was met and stopped by the chief of the Staff of the Army Corps who asked him where he was going, etc. On being told, he also expressed his opinion about Cavalry and unshaken Infantry, but on the absolutely helpless condition of the 24th Regiment being pointed out to him, he agreed that something must be done, and pointing out the position of Bredow's Brigade, said, "Go and call on them to attack, and if they require a positive order before doing so, I will be back in a few minutes with one from the Corps Commander."

It was an awkward position for a young Infantry Subaltern, to have to ride up and call on the most distinguished German Cavalry leader of the day almost (Bredow had made his name in 1866) to perform an almost impossible task, but there was no help for it, so he rode on and delivered his message, which was received with gentle incredulity, and the usual "Cavalry can't charge unshaken Infantry;" but whilst

he was trying to explain the urgency of the situation, the chief of the staff returned with the definite order to charge, upon which Bredow drew his sword, and turning to his trumpeter ordered him to sound the trot. The brigade (only six squadrons) moved off, took ground to the left under cover of the little valley running northward from Vionville, wheeled into line, trotted up the slope, and, having sighted the French, dashed at them at full gallop practically in one line without second or third ones.

The galloper riding back to his General, saw the whole sweep by him, and to his intense astonishment he saw that up to the moment of actual contact, though the whole French line blazed at them all they knew, both in front, and in flank from the wood along the Roman Road, not more than fifty horses at the outside went down.

As is well known they dashed over both lines of Infantry and through the batteries, part of them stayed behind

slaughtering the gunners, but the greater part went right on at the French Cavalry which now attacked them, outnumbering them nearly five to one and with fresh horses. What followed we quote from the Prussian official (page 388, English translation, Vol. I.)

“General v. Bredow sounds the recall. Breathless from the long ride, thinned by the enemies’ bullets, without reserves and hemmed in by hostile horsemen, they once more cut their way through the previously over-ridden lines of Artillery and Infantry ; harassed by a thick rain of rifle bullets and with the foe in rear, the remnant of the two regiments of Prussian Cavalry hastens back to Flavigay. The victims of this charge, courageous unto death, had not fallen in vain. The advance of the 6th Corps was checked, and was now, it is stated by order of Marshal Bazaine—entirely abandoned, at any rate, the French made no fresh advance from the direction of Rezonville this day.”

The first point in their account which will probably strike the reader, is the trifling loss with which the primary object of the charge, viz., the breaking of the enemies' Infantry was executed, yet a little reflection will show that this was not under-estimated by the observer, for the time which the Cavalry took to gallop the 1,500 yards or so which separated them from the Infantry, can hardly have exceeded five minutes, while their subsequent advance, their *melée* with the enemies' horse and eventual retreat occupied at least five times as long, hence if the loss was equally distributed over the whole time (which is not likely to have been the case, for in the *melée* and retreat it must have been more rapid), the proportion of the total loss of 450 horses falling to the first five minutes would only be $\frac{1}{5}$ th of the whole, or about 75, and of which a considerable number must have been due to Artillery fire.

Assuming that the gunners fired no better than the Austrian Artillery at

Tobitschau in 1866 when Bredow's Regiment attacked 18 Austrian guns across 1,500 yards of open ground, and captured them with a loss of only 13 men, then three times this number or 39 would represent the loss due to Artillery fire leaving only 33 accounted for by the Infantry.* The total number of rifles bearing on the Cavalry (taking the position of troops shown on the Prussian Official Map of Vionville Pl. 5. A.) can hardly have been less than 8,000, and the men, who held them shewed at St. Prissat two days afterwards that they were by no means deficient in courage, yet a body of Cavalry of less than a tenth of their strength succeeded in reducing the whole of them to a state of absolute inaction for the remainder of the day. It will be noticed too what a hold, the Umpires Dogma of "Cavalry can't charge unshaken

* My friend's statement, that the loss of the Cavalry in the actual charge was comparatively trifling, was also corroborated by the evidence of two other eye-witnesses. Officers of Artillery belonging to the batteries on the flank round which the attack took place.

Infantry" had taken in the minds of the German leaders ; even Bredow appears to have considered his case too hopeless to make it worth while to form a reserve or second line ; yet the event proved that the Infantry was not quite so unshaken as had been imagined.

That the above was no isolated case the subsequent charge of the 1st Guard Dragoons, sufficiently proves.

After the delivery of Bredow's charge, a lull occurred along the front of the French, but about two hours later, the 4th French Corps having completed its turning movement, commenced to advance in great force on Mars la Tour, at this time the Xth Corps was rapidly approaching the battle-field ; the 38th Infantry Brigade had arrived and was at once sent to check the French. Moving past Mars la Tour to the east they struck the 2nd Division (Grenier) of the 4th French Corps just behind the ravine that run from St. Marcel westward into the valley of the Yrou (Ulsonbach).

After a desperate fight they were driven back by numbers, with a loss of 57 per cent.

* "The 1st Dragoon Guards, standing south-east of Mars la Tour received orders from General v. Voigts Rhetz to cover the retreat of the 38th Brigade, and at any cost to stop the advance of the enemy.

"It was about 5 o'clock in the afternoon when this order arrived, the regiment was in squadron column at deploying intervals right in front. The Adjutant was sent out to reconnoitre the ground and position of the enemy, and, on his return, reported dense masses of the enemies' Infantry pressing on in pursuit of the 38th Brigade, and that the ground east of the village was intersected by hedges and ditches and most unfavourable for the proposed movement. But in spite of this discouraging intelligence, the Colonel lost not a movement in the execution of his order."

* Kochlers Becterris bei Viomtrille, p. 41.

“Headed by the 5th Squadron, then the 3rd and 1st with the 4th in reserve the regiment trotted in column of divisions (Zügs) in a N.-E. direction past Mars la Tour; under the enemies’ fire which soon began to tell, they had to diminish their front to column of threes and then again deploy into divisions (Zügs) in order to overcome the difficulties of the ground, and in doing so, slight disorder arose.”

“The leading division was detached to attack the enemies’ right flank.”

“The rear division had to gallop the whole way in order not to lose distance.”

“Meanwhile the 13th Regiment of the line (French) had crossed the steep ravine in which the Ulzonbach flows and were advancing on the plateau in front—with the 43rd of the line on their left rear.”

“The 1st Guard Dragoons received heavy fire from the former throughout the above indicated movement.”

“The losses increased with every mo-

ment; the Colonel therefore decided to attack at once without waiting for the 1st Squadron following in rear."

"He accordingly right wheeled into line; the 1st Squadron as soon as it had room, right formed and joined the others as a right echelon. This brought the regiment into their proper order of battle, the 1st Squadron on the right, but the squadrons themselves in inversion. Soon after the wheel into line, the gallop sounded and immediately afterwards, the charge."

"The Brigade Commander and his staff joined the attack on the right wing."

"The enemies' skirmishers ran into groups and received the Dragoons with a terrible fire. A Mittrailleuse Battery from across the ravine poured round after round into them; but they broke into the enemies' groups, and a desperate struggle ensued round the French Eagle."

"But the enemies' career was stopped and the pressure on the retreating Prussians relieved."

"The regiment lost about one-third of its effective."

Now in this case we have not only unshaken Infantry ridden at and broken, but troops advancing in the full flush of victory, besides the Cavalry had to cope with the difficulties of the ground and actually executed a series of manœuvres at the trot under both Artillery and Infantry fire before delivering their charge.

The fighting round Sedan afforded several opportunities to the French Cavalry which, although unsuccessful, still deserve consideration.

The charge of the 5th (French) Cuirassiers on the 27th Prussian Infantry at Beaumont failed, owing to the steadiness and discipline of the latter, but still the commander of the company on which the brunt of the attack fell had to guard himself with his sword against a non-commissioned officer of Cuirassier and some of the Fusiliers were thrown to the ground by the horses.

The French loss was upwards of 100 men and 10 officers, the enormous percentage of officers points rather to the French having hung back, and had they been as ready to follow their leader as the Germans at Vionville, the result might have been greater.

The following account of the charge of Margueritte's (French) Brigade, we extract in spite of its length verbatim from the Prussian Official (Vol. II, p. 373).

Overwhelmed by the shells of the Prussian Batteries and more and more closely pent in by the Infantry pressing forward from the west and north, the left wing of the 7th French Corps now also began to fall off in its power of resistance. As General Douay had been obliged to despatch his Infantry reserves to other parts of the battle-field, the Cavalry in a self-sacrificing spirit once more threw itself into the struggle. From the Bois de la Garenne appeared General Margueritte with his five light regiments, which

were joined by Savaress's Lancer Brigade of the 12th Corps and several Cuirassier squadrons of Bonnemain's Cavalry Division.

Whilst these bodies of Cavalry commenced to move across the plateau in a westerly direction, General Margueritte, who had ridden forward in person to reconnoitre, was mortally hit by a musket bullet before the commencement of the charge. General Gallifet assumed the command, placed himself at the head of the Division, and led it against the Prussian Infantry, part of which had at this time reached the crest of the heights in skirmishing lines, while the remainder was still making its way up the steep slopes.

The vigorous flanking fire of the Prussian Batteries and the very unfavourable character of the ground in places loosened from the commencement of the charge, the coherence of the French horse. Broken and with thinned ranks, yet undismayed, the squadrons delivered their charge home

against those detachments of Infantry which were in their path. These latter received the impetuous onset with a firm bearing, and mostly in a broad front behind *protective hedges and ditches*. Only where there was no cover whatever or where the hostile Cavalry attacked simultaneously from several directions, did the skirmishing lines form into knots for defences.

“On the whole the Cavalry charge might be divided into three consecutive attacks, of which the first apparently fell foul more particularly of the 43rd Brigade, the second of the troops coming from Floing. *The wild confusion in which the struggle now surged backwards and forwards for half an hour at the western edges and slopes of the plateau defies any faithful description in detail*; a few collisions alone stand out more conspicuously from the general picture.”

“French Squadrons broke forward from Cazal against the 43rd Brigade, and in spite of the effective case fire directed upon them, reached the line of the eight guns

in action at the edge of the heights south of Floing. The gunners were compelled to defend themselves with their sponge staves and side arms, and Major V. Uslar, Commanding the Division, had a personal contest with several troopers. But the 5th Company 94th Regiment under Captain V. Schnellenbühle succeeded in repulsing the enemy by a vigorous fire, the company also successfully repulsed an attack made by French Cuirassiers on its rear.

The skirmishing lines of the 43rd Brigade and of the detachments which had accompanied them on the right wing were attacked simultaneously by Hussars, cuirassiers and chasseurs d'Afrique and broken through in places. The file fire of the supporting companies, however, scattered the hostile Cavalry in all directions, causing even some of them to plunge down the steep slope of the ridge. Two squadrons of the 1st Cuirassiers succeeded in forcing their way through the Prussian Infantry to Gaulier, and in breaking out suddenly from

the northern issue of the village on the two squadrons of the 13th Hussars posted in front of it. At first Major V. Griesham merely launched two divisions against the enemy, the other he took some distance in the rear, and after forming up led them forward in echelon from the right wing, whilst at the same time the pioneer company posted in the valley of the Meuse, and the nearest detachments of Infantry concentrated their fire upon the French Cuirassiers. These now bent aside towards Floing ; still many were overtaken by the Hussars and made prisoners, while others were shot down, a small number, breaking through to the northward reached the neighbourhood of St. Albert, causing consternation among the advancing regimental wagons and a field hospital, but their careers was shortly terminated by the Infantry which met them.

The 12th and parts of the 1st and 2nd Companies, 83rd Regiment, were attacked by lancers which rode over a skirmishing

division in open order. The remainder of the men found protection behind a hedge, and allowing the enemy to approach within thirty paces received them with a withering volley. The remainder of the French band of horse careering past Floing fell into the hands of other advancing detachments.

On the left wing of the Prussian Infantry the Musketeer Battalions, 46th Regiment had ascended about half way up the slope when they were attacked by French Lancers. This attack was, however, repulsed by the fire of the 3rd, 5th, and 7th Companies, the 8th successfully co-operating from the cemetery. The hostile Cavalry bending away northward threw themselves into Floing, but there came under the fire of the 2nd Company 5th Rifle Battalion, which hurried up from a side street, and to which they, for the most part, succumbed. Leaving the 4th Company temporarily as reserve in the village, this Battalion, mingled with detachments of Hessian Regiments, and, in

general, on the right of the 46th, then likewise scaled the steep slope. Advancing from edge to edge, the rifles had just established themselves in a shelter trench abandoned by the enemy on the upper border of the plateau, when a fresh Cavalry charge took place. Two squadrons of cuirassiers mounted on grey horses first charged the 5th, 3rd, and 2nd Companies, 46th Regiment, whose left wing was especially hard pressed. But after an effective shower of bullets had also warded off this attack, the repulsed horseman fell under the flanking fire of a body of stragglers rapidly assembled by 1st Lieutenant Bendemann, and had some difficulty in escaping entire annihilation. Some squadrons of chasseurs which had followed on the left flank of the cuirassiers, fell in with the three companies of the 5th Rifle Battalion, the skirmishers of which they partly rode down. The fire, however, of the closed supports compelled the hostile horsemen to bear away to the right : a volley from the

2nd Company, which had formed a knot on the left wing, completely dispersed them. Some French Hussars which charged the 3rd Rifle Company immediately afterwards, but were driven off by the file fire of this and of the 46th in support, likewise bending away to the right succeeded in reaching the rear of the other two Rifle Companies. The supports and also the skirmishers of the latter on higher ground at once faced about ; an annihilating fire received the Hussars, who now took refuge in an hollow of the ground in front. The skirmishers of the 1st and 2nd Rifle Companies had been obliged meanwhile to face to their original front in order to protect themselves from other hostile Cavalry ; they were, however, successful in also compelling the new adversary to retire. The attack of the French Cavalry which had been executed with the greatest impetuosity and self-sacrifice, had thus come to a close on this wing, and had also failed in a similar manner at other points of the battle-

field. At some places, indeed, their lines of skirmishers had been suddenly broken through at the first onset ; but the fire of the supports had in all cases destroyed the force of the fierce charge. The subsequent attacks met with still greater resistance, as the Prussian Infantry had now reached the edge of the plateau in considerable force, and found the means of ensconcing itself under cover of the ground. More and more annihilating waxed their fire against the already scattered squadrons, which were speedily thrown into complete disorder. Dead and wounded riders and horses lay in heaps on the height : many who survived the bullet were precipitated headlong into the Gaulier quarries and there found their last resting place. Besides General Margueritte, Generals Girard and Tilliard had fallen, General d'Salignac Fenelon was wounded, the regiments which had taken part in the charge had on an average lost half their men.

“ The Prussian Infantry had suffered but

inconsiderable loss ; yet a comparatively large number of men, more especially riflemen, had been wounded in single combat by the cut and point of the enemy's Cavalry. The remnant of the latter sought refuge in the ravines of the Bois de la Garenne."

"Although success was denied to the attack of these gallant bands of horse, and their self-sacrificing advance could no longer avert the already sealed fate of the French Army, yet the latter looks back with justifiable pride upon the fields of Floing and Cazal, where, on the day of Sedan, their Cavalry honourably succumbed to the victorious adversary."

Now in this case, there was no attempt at surprise, for the Cavalry was seen the moment they left the shelter of the woods and every available gun was turned on them.

The ground was intersected by banks and ditches and was decidedly unfavourable for Cavalry. The distance to be crossed was

at least 1,000 yards. The Cavalry themselves had already suffered severely, and finally the German were anything but demoralised. Yet for half-an-hour, it is admitted, the course of the struggle "defied description," that no advantage of this half hour's grace was taken by the rest of the Army was no fault of the Cavalry. But had this charge been made to form the screen for an organised attempt to break out, and had the attempt succeeded, the Cavalry attack could hardly have been spoken of disparagingly as a failure, but would rather have gone down to posterity as one of the finest examples of its employment in history.

This finishes the list of charges delivered during the Franco-German war.

Taking the nett results obtained by the Prussian Cavalry, we find that in spite of the increase of range and rapidity of fire of the new arm, Cavalry can still manœuvre under their fire, when held by troops at least as steady and well drilled as any of

the Latin races are likely to put in the field, and by proper choice of ground and opportunity can ride them down with comparatively trifling loss. Even when these troops are good enough to render an attack by Infantry difficult, if not impossible.

There was no perceptible difference in composition between Gremier's Division which defeated the 38th Brigade, and the troops of Canrobert Corps which went down before Bredow, but the latter succeeded with a loss of 450 horses about in reaching and breaking the French lines; the former failed with a loss of over 3,000. Yet though the former has been christened "Todten Rott" Cheveauchade de mort "death ride," etc., no such epithet has been applied to the latter.

If the nature of the ground over which Von Wedell's (38th) Brigade attacked is urged in defence of their failure, we will instead compare Bredow's success with the failure of the Guard Corps, unquestionably

the finest Infantry on the continent, against the same corps (Canroberts) two days later at St. Privat. This attack was beaten off by Infantry fire alone, the Artillery had run out of ammunition (*vide* General H. Brackenburgh's account in *Les Mareschaux de France* given as a note to page 112 in the *Wellington Prize Essay*), and was made over the same glacis like ground that Bredow galloped over.

As for the French charges, they were doomed to failure from the first, owing chiefly to the difficulties of the ground which they encountered and to their omission to reconnoitre it previously, their Cavalry were inferior in mounting, horsemanship, and discipline, and the foe they attacked, proved themselves under perfect control, reserving their fire for short ranges, whilst so far from being demoralised, they were invariably in full career of victory, when the attacks fell on them.

Now, even in the palmiest days of Cavalry, it has never been maintained that such

Infantry could be attacked with certainty of success under such conditions.

Theories based on practice ground conditions are not, as a rule, of much value in war, but here the result of theory agrees so closely with practice that we venture to give one.

Cœteris paribus the number of hits on a target will depend, 1st, on its size; 2nd, on length of time during which it is exposed to fire.

Now, in the Infantry attack, the foot soldier will be lying down or kneeling during at least one half the time of its duration, therefore we can take the mean height of the target he exposes at half a man's height.

The horseman, erect in his saddle the whole time, exposes approximately three times the surface (actually considerably less, for the legs of a horse do not present much surface and might practically be neglected).

The mean density of the Infantry, even according to our own drill book, commenc-

ing with an extension of one file to every four paces and finishing with a double line, gives at least a man to the pace, and in the Prussian attack where the final rush is often made 6 to 10 men deep, it is much greater.

But if Cavalry attack Infantry armed with the breech-loader, the same reasoning which has compelled the latter to adopt extended order, is applicable to the former, and hence they should attack at open files (say 1 horse length interval) in successive lines.

Hence, whereas the height of the Cavalry target, compared with the Infantry target, is as 3 to 1, its density is only as about 1 to 4, or, in other words, the Infantry offer a larger mark in the proportion of 4 to 3.

Now, taking the Prussian Infantry attack as the fastest at present in use, at least 16 minutes are required to traverse the 800 yards, from which distance the attack proper may be said to commence (allowing sufficient time for the firing 1 minute at each of 5 halts and 5 minutes at decisive range).

But Cavalry cover the same distance in less than two minutes, for they would certainly travel faster than 15 miles an hour.

Hence the time of exposure is only $\frac{1}{8}$ th of that of Infantry, so that combining the two, we find that in attacking over 800 yards of open, Infantry would receive rather more than 10 times as many hits as Cavalry.

That is to say, supposing the ground equally suitable for both arms, Cavalry would attain the same temporary result for 300 horses and men hit, as Infantry would with a loss of over 3,000; and the permanent retention of the advantage gained would, in both cases, depend on the support of Artillery, and reserves, only in the case of the Cavalry, the support would have to be brought up with greater promptitude.

But there are yet three factors with which we have to reckon : 1st.—The moral effect of the advancing horseman on the defenders which will vary with the quality

and discipline of his troops and the difficulty of adjusting the sights to the rapidity varying ranges and of restraining the fire which may all be included under the head of moral effect.

2ndly.—It takes more bullets to put a man on horseback out of action than a man on foot. A man may be most severely hit and yet retain strength enough to stick in his saddle for the last 100 yards; whereas, a man on foot with a broken leg or a bullet through his lungs must drop; the tenacity of life in the horse is well known, and we do not believe that any Military Rifle in Europe (excluding the Snider) will stop a horse at full gallop under a couple of hundred yards, unless the bone of the legs is broken or the heart or brain pierced.

And, thirdly, the moral effect on the Cavalry themselves of their rapid motion.

Horses indeed may be tired and done, though they are fully as susceptible of excitement as human beings, but the man on his back will be barely conscious of it,

whereas no matter how wild for blood a foot-soldier may be, the exhaustion of his physical power caused by a long and trying march must tell ; and in addition under the same head we must include the discipline of the horse itself. Discipline may be defined as the tyranny of habit, which makes it easier for a terrified man to do that which he does not want to do than to make up his mind to break through the bonds of teaching and runaway, and in this sense horses are more susceptible to discipline than conscript soldiers, riderless horses almost invariably stick to their squadrons and for the purpose of aiding the first stock, it is almost immaterial whether they have a man on them or not.

The limit of 800 yards is not an arbitrary one ; but is approximately the limit at which the preparatory fire fight changes into the definite advance to the attack.

The choice of this limit is indeed unfavourable to the Cavalry, for no consideration is taken of the losses which the

Infantry must necessarily suffer in working up to that distance and remaining there, often for hours, while the Artillery prepare the attack and the masses of Infantry on whom the actual assault devolves are being collected. Whereas, even if the ground is most unfavourable and no cover from sight offers itself, the Cavalry may often approach comparatively unharmed to the enemies' line, under cover of the smoke and confusion of the fight.

It is all very well for umpires having nothing else to do but to look out, to take notice of such an approach in peace time, but the assumption that this approach would have been noticed in actual war by the troops threatened is not well founded. Even if a special officer is told off in each Battalion, merely to watch the course of the action and report it, every one's attention is so necessarily concentrated, on that particular portion of the enemy, which at that moment appears to be injuring him most, that it would only be with the

greatest difficulty that the men could be brought to fire in the direction indicated by the look-out officer.

But even when the Cavalry are unfortunate enough to be seen at the very commencement of their advance, say, at 2,000 yards, they have still their rapidity of movement to rely on, and probably most experienced Cavalry officers would prefer that the Infantry should open on them at that extreme range, relying on the almost moral certainty, that the latter would forget to put their sights down, as the range decreased.

The conclusion we would draw from the whole of the above, is by no means that Cavalry will under all and every circumstances ride down Infantry; on the contrary, we believe fully in the axiom laid down in the German Infantry drill book that steady Infantry, as long as it preserves its discipline and controls its fire is unapproachable in front; but we maintain that in the armies either we or the Germans

are likely to have to deal with ; such Infantry will rarely be met with, and then only at the commencement of the action.

Breech-loaders have introduced a new factor to the battle-field, and that is "noise" and the excitement resulting therefrom which will have to be reckoned with in future.

The precise degree to which troops will be affected by it will depend to a large extent, if not entirely, on national temperament.

The introduction of the breech-loader sounded the death knell of the Latin Races, and we are inclined to believe it will be equally disadvantageous to all semi-civilized races including the hordes of Russians, we may some day have to meet.

Wherever the attack has been properly prepared and the nature of the ground permits, both of the covered approach of Cavalry to the enemies' position and the delivery of the charge, we believe that the actual shock which should drive the ene-

mies' Infantry out of his position (unless he is heavily entrenched) can be delivered by Cavalry with less loss than by Infantry, but its rapid support by Artillery followed up by foot soldiers will be essential to hold the ground then won.

These conditions will not, indeed cannot, occur so frequently, as to rob the Infantry of their share in the decision, but when they do occur, they may be confidently seized.

The attacks should be carried out by advance of the Cavalry round the flanks, not through the lines of the Infantry, for as pointed out by Prince Hohenlohe, the cessation of the Infantry fire even for a few moments is such a relief to the nerves of the defender, that it immediately as it were, steadies him afresh.

This alone, will reduce the numbers of such opportunities, for, on a crowded battle-field, it will be hard to find room for the advance of any body larger than a squadron, except round the outer flanks of the

whole army, in which case we may expect it to be met by a corresponding movement on the part of the enemies' squadrons.

Space prevents further investigation of the actual employment of the arm on the battle-field in detail ; but in conclusion we would ask, whether any Cavalry man can ask for a better opportunity for his arm, than that presented, by the flank of the attack in its last stage, when supports and reserves have long been absorbed into one dense line, when the attention of all is rivetted on the enemy in front, the firing has reached its maximum degree of intensity, and neither voice nor signal can make itself heard or seen. Is it conceivable that at such a moment the few who may have become aware of the approach of the enemies' horse, can make their influence felt sufficiently, in the heterogeneous mass of different regiments, brigades and divisions under them, to turn their attention on the new assailant? We believe not, and the Cavalry which first learns to

seize such opportunities, will go far to re-establishing the balance between quality and numbers and will demonstrate the truth of our opening sentence, that, "the efficiency of an army varies with the product not the sum of the efficiencies of the three arms."



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